



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We make Indiana a cleaner, healthier place to live.*

Joseph E. Kernan  
Governor

Lori F. Kaplan  
Commissioner

March 1, 2004

100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, Indiana 46206-6015  
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(800) 451-6027  
[www.in.gov/idem](http://www.in.gov/idem)

TO: Interested Parties / Applicant

RE: Urschel Laboratories Inc. / F127-17726-00037

FROM: Paul Dubenetzky  
Chief, Permits Branch  
Office of Air Quality

## Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FNPER.dot 9/16/03



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**FEDERALLY ENFORCEABLE STATE  
OPERATING PERMIT (FESOP) AND NEW SOURCE  
REVIEW  
OFFICE OF AIR QUALITY**

**Urschel Laboratories Incorporated  
2503 Calumet Avenue  
Valparaiso, Indiana 46384**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

**The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.**

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: F127-17726-00037	
Issued by:Original signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date:March 1, 2004  Expiration Date:March 1, 2009



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## SECTION A

## SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-8-3(b)]

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The Permittee owns and operates a stationary no bake and green-sand bronze foundry operations.

Authorized individual:	Plant Manager
Source Address:	2503 Calumet Avenue, Valparaiso, IN 46383
Mailing Address:	2503 Calumet Avenue, Valparaiso, IN 46383
General Source Phone:	(219) 464-4811
SIC Code:	3556
Source Location Status:	Severe nonattainment for ozone
Source Status:	Unclassified or attainment for all other criteria pollutants
	Federally Enforceable State Operating Permit (FESOP)
	Minor Source, under PSD and Emission Offset;
	Minor Source, Section 112 of the Clean Air Act

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

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This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) Green Sand Foundry operation, installed in 1990, consisting of the following:
  - (1) One (1) Sand handling system identified as Unit D, consisting of return sand storage bin, sand feeder hopper, surge hopper, batch hopper, prepared sand feeder hopper, two (2) molder hoppers and associated conveyance equipment, with maximum rate of 25 tons per day and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
  - (2) Electric induction melting furnace, pouring, casting and cooling operation identified as Unit E, with maximum charge capacity of 0.3 tons of metal per hour with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.
- (b) One (1) No Bake Foundry operation, to be installed in 2003, consisting of the following:
  - (1) One (1) Sand handling system identified as Unit A, consisting of two (2) sand silos, two (2) sand hoppers and associated conveyance equipment, with maximum rate of 5.04 tons of sand per hour, and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
  - (2) Electric induction melting furnace, pouring, casting and cooling operation identified as Unit B, with maximum charge capacity of 0.6 ton of metals per hour and maximum binder usage of 26 lbs/ton of sand, with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.

- (3) One (1) thermal sand reclamation operation identified as Unit C, controlling VOCs from the spent sand by a thermal oxidizer (PCU-3) with maximum system capacity of 1000 lbs sand per hour, equipped with a baghouse PCU-4 and exhausting to S/V-3.
- (c) One (1) Plasma cutting operation identified as Unit P with maximum cutting rate of 2,220 inches per hour (equivalent to process weight rate of 1.0 ton per hour) and exhausting to S/V-4.

A.3 Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.
  - (1) Two (2) natural gas fired sand heater cooler classifiers identified as EQ-3A and EQ-3B, and each rated at maximum heat input rating of 0.375 MMBtu/hr.
  - (2) Two (2) natural gas fired ladle torches identified as EQ-12A, with combined heat input rating of 1.5 MMBtu/hr.
  - (3) One (1) natural gas fired thermal oxidizer identified as PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.
  - (4) One (1) natural gas fired autoclave boiler identified as EQ-19, and rated at maximum heat input rating of 0.89 MMBtu/hr. [326 IAC 6-2-4]
  - (5) One (1) natural gas fired ceramic mold furnace identified as EQ-20, and rated at maximum heat input rating of 2.52 MMBtu/hr.
- (b) The following VOC and HAP storage containers:
  - (1) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughput less than 12,000 gallons.
  - (2) Vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids.
- (c) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (d) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.
  - (1) Frame and cover welding operation identified as Unit M. [326 IAC 6-3-2]
  - (2) Laser cutting operation identified as Unit O. [326 IAC 6-3-2]
  - (3) Brazing operation booth identified as Unit W. [326 IAC 6-3-2]
- (e) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (f) Paved and unpaved roads and parking lots with public access.
- (g) Furnaces used for melting metals other than beryllium with a brim full capacity of less than or equal to 450 cubic inches by volume.

- (h) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
  - (1) Frame grinding operation identified as Unit N. [326 IAC 6-3-2]
- (i) A laboratory as defined in 326 IAC 2-7-1(21)(D).
- (j) Activities with emissions below insignificant thresholds not previously identified (i.e. VOC emission less than 3 lb/hr and particulate emission less than 5 lb/hr):
  - (1) Immersion Cleaning of Machine Parts identified as Unit G. [326 IAC 8-3-2&5]
  - (2) Spray booth for impeller repair.
  - (3) One (1) stainless steel foundry employing the investment casting process (electric induction melting furnace and pouring operation only), identified as Unit K, with maximum metal charge capacity of 310 pounds per hour.

A.4 FESOP Applicability [326 IAC 2-8-2]

This stationary source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) for a Federally Enforceable State Operating Permit (FESOP).

A.5 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of previous permits issued pursuant to permitting programs approved into the state implementation plan have been either
  - (1) incorporated as originally stated,
  - (2) revised, or
  - (3) deletedby this permit.
- (b) All previous registrations and permits are superseded by this permit.

## **SECTION B                      GENERAL CONDITIONS**

### **B.1      Permit No Defense [IC 13]**

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a FESOP under 326 IAC 2-8.

### **B.2      Definitions [326 IAC 2-8-1]**

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2, and 326 IAC 2-7) shall prevail.

### **B.3      Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5]**

This permit is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date.

### **B.4      Enforceability [326 IAC 2-8-6]**

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

### **B.5      Termination of Right to Operate [326 IAC 2-8-9] [326 IAC 2-8-3(h)]**

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-8-3(h) and 326 IAC 2-8-9.

### **B.6      Severability [326 IAC 2-8-4(4)]**

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

### **B.7      Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]**

This permit does not convey any property rights of any sort, or any exclusive privilege.

### **B.8      Duty to Provide Information [326 IAC 2-8-4(5)(E)]**

- (a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ, may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1). Upon request, the Permittee shall also furnish to IDEM, OAQ, copies of records required to be kept by this permit.
- (b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

### **B.9      Compliance Order Issuance [326 IAC 2-8-5(b)]**

IDEM, OAQ may issue a compliance order to this Permittee upon discovery that this permit is in nonconformance with an applicable requirement. The order may require immediate compliance or contain a schedule for expeditious compliance with the applicable requirement.

**B.10 Certification [326 IAC 2-8-3(d)] [326 IAC 2-8-4(3)(C)(i)] [326 IAC 2-8-5(1)]**

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- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an authorized individual of truth, accuracy, and completeness. This certification, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.
- (c) An authorized individual is defined at 326 IAC 2-1.1-1(1).

**B.11 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]**

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- (a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in letter form no later than April 15 of each year to:  
  
Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015
- (b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.
- (c) The annual compliance certification report shall include the following:
  - (1) The appropriate identification of each term or condition of this permit that is the basis of the certification;
  - (2) The compliance status;
  - (3) Whether compliance was continuous or intermittent;
  - (4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and
  - (5) Such other facts as specified in Sections D of this permit, IDEM, OAQ, may require to determine the compliance status of the source.

The notification which shall be submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

**B.12 Preventive Maintenance Plan [326 IAC 1-6-3] [326 IAC 2-8-4(9)] [326 IAC 2-8-5(a)(1)]**

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- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days after issuance

of this permit, including the following information on each facility:

- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
- (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
- (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

The PMP extension notification does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions or potential to emit.
- (c) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMP does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation, Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

**B.13 Emergency Provisions [326 IAC 2-8-12]**

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- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation, except as provided in 326 IAC 2-8-12.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describes the following:
  - (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
  - (2) The permitted facility was at the time being properly operated;

- (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
- (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, and IDEM Northwest Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone No.: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section)  
or,  
Telephone No.: 317-233-5674 (ask for Compliance Section)  
Facsimile No.: 317-233-5967  
Telephone No.: 219-881-6712 (IDEM Northwest Regional Office)  
Facsimile No.: 219-881-6745 (IDEM Northwest Regional Office)

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-8-4(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
- (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
- (e) IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of

326 IAC 2-8 and any other applicable rules.

(g) Operations may continue during an emergency only if the following conditions are met:

(1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

(2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

(A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and

(B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

(h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

**B.14 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]**

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(a) Deviations from any permit requirements (for emergencies see Section B - Emergency Provision), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

**B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination  
[326 IAC 2-8-4(5)(C)] [326 IAC 2-8-7(a)] [326 IAC 2-8-8]**

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(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a FESOP modification, revocation and reissuance,

or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:
  - (1) That this permit contains a material mistake.
  - (2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.
  - (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]
- (c) Proceedings by IDEM, OAQ, to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]
- (d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ, at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ, may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

**B.16 Permit Renewal [326 IAC 2-8-3(h)]**

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- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, IN 46206-6015

- (b) Timely Submittal of Permit Renewal [326 IAC 2-8-3]
  - (1) A timely renewal application is one that is:
    - (A) Submitted at least nine (9) months prior to the date of the expiration of this permit; and
    - (B) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

- (2) If IDEM, OAQ upon receiving a timely and complete permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect until the renewal permit has been issued or denied.
- (c) Right to Operate After Application for Renewal [326 IAC 2-8-9]  
If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ, any additional information identified as needed to process the application.

**B.17 Permit Amendment or Revision [326 IAC 2-8-10] [326 IAC 2-8-11.1]**

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- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 whenever the Permittee seeks to amend or modify this permit.
- (b) Any application requesting an amendment or modification of this permit shall be submitted to:  
  
Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015  
  
Any such application shall be certified by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) The Permittee may implement the administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]
- (d) No permit amendment or modification is required for the addition, operation or removal of a nonroad engine, as defined in 40 CFR 89.2.

**B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]**

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- (a) The Permittee may make any change or changes at this source that are described in 326 IAC 2-8-15(b) through (d), without prior permit revision, if each of the following conditions is met:
  - (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
  - (2) Any approval required by 326 IAC 2-8-11.1 has been obtained;
  - (3) The changes do not result in emissions which exceed the emissions allowable under this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
  - (4) The Permittee notifies the:  
  
Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015

Indianapolis, Indiana 46206-6015

and

United States Environmental Protection Agency, Region V  
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

- (5) The Permittee maintains records on-site which document, on a rolling five (5) year basis, all such changes and emissions trading that are subject to 326 IAC 2-8-15(b) through (d) and makes such records available, upon reasonable request, to public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ, in the notices specified in 326 IAC 2-8-15(b)(2), (c)(1), and (d).

- (b) Emission Trades [326 IAC 2-8-15(c)]  
The Permittee may trade increases and decreases in emissions in the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(c).
- (c) Alternative Operating Scenarios [326 IAC 2-8-15(d)]  
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ or U.S. EPA is required.

**B.19 Permit Revision Requirement [326 IAC 2-8-11.1]**

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A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-8-11.1.

**B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)] [IC 13-14-2-2][IC13-30-3-1]**

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Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a FESOP source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect at

reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

- (a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

The application which shall be submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.22 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ, within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.
- (b) Failure to pay may result in administrative enforcement action, or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4320 (ask for OAQ, I/M & Billing Section), to determine the appropriate permit fee.

## SECTION C SOURCE OPERATION CONDITIONS

Entire Source
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### Emissions Limitations and Standards [326 IAC 2-8-4(1)]

#### C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds Per Hour [40 CFR 52 Subpart P][326 IAC 6-3-2]

- (a) Pursuant to 40 CFR 52 Subpart P, particulate matter emissions from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour.
- (b) Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

#### C.2 Overall Source Limit [326 IAC 2-8]

The purpose of this permit is to limit this source's potential to emit to less than major source levels for the purpose of Section 502(a) of the Clean Air Act.

- (a) Pursuant to 326 IAC 2-8:
  - (1) The potential to emit volatile organic compounds (VOCs) from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period. This limitation shall also satisfy the requirements of 326 IAC 2-3 (Emission Offset);
  - (2) The potential to emit any regulated pollutant from the entire source, except particulate matter (PM) and volatile organic compounds (VOCs), shall be limited to less than one-hundred (100) tons per twelve (12) consecutive month period;
  - (3) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
  - (4) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.
- (b) Pursuant to 326 IAC 2-3 (Emission Offset), potential to emit particulate matter (PM) from the entire source shall be limited to less than one-hundred (100) tons per twelve (12) consecutive month period.
- (c) This condition shall include all emission points at this source including those that are insignificant as defined in 326 IAC 2-7-1(21). The source shall be allowed to add insignificant activities not already listed in this permit, provided the source's potential to emit does not exceed the above specified limits.
- (d) Section D of this permit contains independently enforceable provisions to satisfy this requirement.

**C.3 Opacity [326 IAC 5-1]**

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Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

**C.4 Open Burning [326 IAC 4-1] [IC 13-17-9]**

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The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

**C.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2(3)]**

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The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and in 326 IAC 9-1-2.

**C.6 Fugitive Dust Emissions [326 IAC 6-4]**

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The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

**C.7 Operation of Equipment [326 IAC 2-8-5(a)(4)]**

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Except as otherwise provided by statute, rule or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission unit vented to the control equipment is in operation.

**C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]**

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- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
  - (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
  - (2) If there is a change in the following:
    - (A) Asbestos removal or demolition start date;
    - (B) Removal or demolition contractor; or

(C) Waste disposal site.

- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management  
Asbestos Section, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (e) **Procedures for Asbestos Emission Control**  
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1 emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
- (f) **Demolition and Renovation**  
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Accredited Asbestos Inspector**  
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.

**Testing Requirements [326 IAC 2-8-4(3)]**

**C.9 Performance Testing [326 IAC 3-6]**

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Quality  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

#### **Compliance Requirements [326 IAC 2-1.1-11]**

##### C.10 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

#### **Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]**

##### C.11 Compliance Monitoring [326 IAC 2-8-4(3)] [326 IAC 2-8-5(a)(1)]

Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

in writing, prior to the end of the initial ninety (90) day compliance schedule with full justification of the reasons for inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Unless otherwise specified in the approval for the new emissions unit, compliance monitoring for new emission units or emission units added through a permit revision shall be implemented when operation begins.

##### C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63 or other approved methods as specified in this permit.

##### C.13 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)] [326 IAC 2-8-

5(1)]

- 
- (a) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ( $\pm 2\%$ ) of full scale reading.
- (b) Whenever a condition in this permit requires the measurement of a temperature, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ( $\pm 2\%$ ) of full scale reading.
- (c) The Permittee may request the IDEM, OAQ approve the use of a pressure gauge or other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

**Corrective Actions and Response Steps [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]**

**C.14 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]**

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If a regulated substance as defined in 40 CFR 68 is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

**C.15 Compliance Response Plan - Preparation, Implementation, Records, and Reports  
[326 IAC 2-8-4] [326 IAC 2-8-5]**

- 
- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and is comprised of:
- (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected time frame for taking reasonable response steps.
  - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan to include such response steps taken.
- (b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:
- (1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan; or
  - (2) If none of the reasonable response steps listed in the Compliance Response Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this

condition.

- (3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, and it will be 10 days or more until the unit or device will be shut down, then the permittee shall promptly notify the IDEM, OAQ of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
- (4) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (c) The Permittee is not required to take any further response steps for any of the following reasons:
  - (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.
  - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the permit, and such request has not been denied.
  - (3) An automatic measurement was taken when the process was not operating.
  - (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.
- (e) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-8-12 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.
- (f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4]  
[326 IAC 2-8-5]

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- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ

may extend the retesting deadline.

- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

### **Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]**

#### **C.17 Emission Statement [326 IAC 2-6] [326 IAC 2-8-4(3)]**

- (a) The Permittee shall submit an emission statement certified pursuant to the requirements of 326 IAC 2-6. This statement must be received in accordance with the compliance schedule specified in 326 IAC 2-6-3 and must comply with the minimum requirements specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8). The statement must be submitted to:

Indiana Department of Environmental Management  
Technical Support and Modeling Section, Office of Air Quality  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

The emission statement does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

#### **C.18 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]**

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

#### **C.19 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]**

- (a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:  
  
Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015
- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.
- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (e) The first report covered the period commencing on the date of issuance of the original FESOP and ended on the last day of the reporting period. All subsequent reporting periods shall be based on calendar years.

### **Stratospheric Ozone Protection**

#### **C.20 Compliance with 40 CFR 82 and 326 IAC 22-1**

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with the standards for recycling and emissions reduction:

- (a) Persons opening appliances for maintenance, service, repair or disposal must comply with the required practices pursuant to 40 CFR 82.156
- (b) Equipment used during the maintenance, service, repair or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- (c) Persons performing maintenance, service, repair or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

## SECTION D.1

## FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-8-4(10)]:

- (a) One (1) Green Sand Foundry operation, installed in 1990, consisting of the following:
  - (1) One (1) Sand handling system identified as Unit D, consisting of return sand storage bin, sand feeder hopper, surge hopper, batch hopper, prepared sand feeder hopper, two (2) molder hoppers and associated conveyance equipment, with maximum rate of 25 tons per day and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
  - (2) Electric induction melting furnace, pouring, casting and cooling operation identified as Unit E, with maximum charge capacity of 0.3 tons of metal per hour with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.
- (b) One (1) No Bake Foundry operation, to be installed in 2003, consisting of the following:
  - (1) One (1) Sand handling system identified as Unit A, consisting of two (2) sand silos, two (2) sand hoppers and associated conveyance equipment, with maximum rate of 5.04 tons of sand per hour, and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
  - (2) Electric induction melting furnace, pouring, casting and cooling operation identified as Unit B, with maximum charge capacity of 0.6 ton of metals per hour and maximum binder usage of 26 lbs/ton of sand, with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.
  - (3) One (1) thermal sand reclamation operation identified as Unit C, controlling VOCs from the spent sand by a thermal oxidizer (PCU-3) with maximum system capacity of 1000 lbs sand per hour, equipped with a baghouse PCU-4 and exhausting to S/V-3.
- (c) One (1) Plasma cutting operation identified as Unit P with maximum cutting rate of 2,220 inches per hour (equivalent to process weight rate of 1.0 ton per hour) and exhausting to S/V-4.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 326 IAC 2-8-11.1, WITH CONDITIONS LISTED BELOW ONLY SUBJECT ONLY TO NO BAKE FOUNDRY (UNIT A).

### Construction Conditions

#### General Construction Conditions

D.1.1 This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

#### Effective Date of the Permit

D.1.2 Pursuant to IC 13-15-5-3, this section of this permit becomes effective upon its issuance.

D.1.3 All requirements of these construction conditions shall remain in effect unless modified in a manner

consistent with procedures established for revisions pursuant to 326 IAC 2.

- D.1.4 Pursuant to 326 IAC 2-1-9(b) (Revocation of Permits), IDEM, OAQ may revoke this section of the approved permit if construction is not commenced within eighteen (18) months after receipt of this permit or if construction is suspended for a continuous period of (1) one year or more.

### Operation Conditions

#### Emission Limitations and Standards [326 IAC 2-8-4(1)]

##### D.1.5 Particulate [326 IAC 6-3]

The particulate emissions from the emission units listed in the table below shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

The allowable emissions for each facility operating at its maximum process weight rate are as follows:

Emission Unit ID	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (lb/hr)
Unit A (No Bake Foundry Sand Handling System)	5.04	12.12
Unit B (No Bake Foundry Melting/Pouring Equipment)	0.60	2.91
Unit C (No Bake Foundry: Thermal Sand Reclamation Unit)	0.50	2.57
Unit D (Green Sand Foundry Sand Handling System)	1.04	4.21
Unit E (Green Sand Foundry Melting/Pouring Equipment)	0.30	1.83
Unit P (Plasma Cutting)	1.00	4.10

##### D.1.6 Particulate Matter (PM) [326 IAC 2-2]

Pursuant to 326 IAC 2-2, the allowable PM emissions from:

- (a) the No Bake Foundry Sand Handling System (Unit A) shall not exceed 6.97 pounds per hour, which is equivalent to 30.53 tons per year;
- (b) the No Bake Foundry Melting/Pouring Operations (Unit B) shall not exceed 2.91 pounds per hour, which is equivalent to 12.74 tons per year;
- (c) the Thermal Sand Reclaimer (Unit C) shall not exceed 2.57 pounds per hour, which is equivalent to 11.25 tons per year;

- (d) the Green Sand Foundry Sand Handling System (Unit D) shall not exceed 4.21 pounds per hour, which is equivalent to 18.44 tons per year;
- (e) the Green Sand Foundry Metal/Pouring Operations (Unit E) shall not exceed 1.83 pounds per hour, which is equivalent to 8.01 tons per year; and
- (f) the Plasma cutting operations (Unit P) shall not exceed 4.10 pounds per hour, which is equivalent to 18.0 tons per year.

Compliance with these limits shall limit the source's potential to emit of PM to less than 250 tons per twelve (12) consecutive month period and make the requirements of 326 IAC 2-2 (PSD) not applicable.

D.1.7 Particulate Matter Less Than Ten Microns (PM<sub>10</sub>) [326 IAC 2-8]

Pursuant to 326 IAC 2-8 (FESOP) the PM-10 emissions from:

- (a) the No Bake Foundry Sand Handling System (Unit A) shall not exceed 6.97 pounds per hour, which is equivalent to 30.53 tons per year;
- (b) the No Bake Foundry Melting/Pouring Operations (Unit B) shall not exceed 2.91 pounds per hour, which is equivalent to 12.74 tons per year;
- (c) the Thermal Sand Reclaimer (Unit C) shall not exceed 2.57 pounds per hour, which is equivalent to 11.25 tons per year;
- (d) the Green Sand Foundry Sand Handling System (Unit D) shall not exceed 4.21 pounds per hour, which is equivalent to 18.44 tons per year;
- (e) the Green Sand Foundry Metal/Pouring Operations (Unit E) shall not exceed 1.83 pounds per hour, which is equivalent to 8.01 tons per year; and
- (f) the Plasma cutting operations (Unit P) shall not exceed 4.10 pounds per hour, which is equivalent to 18.0 tons per year.

Compliance with these requirements shall limit the source wide potential to emit PM-10 to less than 100 tons per twelve (12) consecutive month period. Therefore, the requirements of 326 IAC 2-7 do not apply.

D.1.8 Volatile Organic Compounds (VOCs) [326 IAC 8-1-6][326 IAC 2-3][326 IAC 2-8]

- (a) The total binder usage in No Bake Foundry shall be limited to 110,500 pounds per twelve (12) consecutive month period with compliance determined at the end of each month (equivalent to VOC emissions factor of 0.066 lb VOC/lb binder and 0.205 lb VOC/lb binder for emission Units A and B, respectively). This is equivalent to VOC emissions of 3.65 and 11.33 tons per year from emission Units A and B, respectively.
- (b) The VOC emissions from the Thermal Sand Reclaimer (Unit C) shall not exceed 0.06 tons per year based on control by the Thermal Oxidizer (PCU-3) with overall VOC control efficiency of 99.9%.

The binder usage limit and the controlled VOC emissions limits yield total VOC emissions from the No Bake Foundry (Sand Handling System (Unit A), Induction Furnace, Pouring, Casting & Cooling (Unit B), and Thermal Sand Reclaimer (Unit C)) that are less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 (New Facilities, General Reduction Requirements), 326 IAC 2-3 (Emission Offset) and 326 IAC 2-2 (Part 70) do not apply.

**D.1.9 Preventive Maintenance Plan [326 IAC 2-8-4(9)]**

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A Preventive Maintenance Plan, in accordance with Section B Preventive Maintenance Plan, of this permit, is required for the facilities (Units A, B, C, D, and E) and any emission control devices (PCU-1, PCU-2, PCU-3, and PCU-4).

**Compliance Determination Requirements**

**D.1.10 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]**

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- (a) During the period within 180 days after issuance of this permit, in order to demonstrate compliance with Conditions D.1.5, D.1.6 and D.1.7, the Permittee shall perform PM and PM-10 testing on the baghouse (PCU-1) controlling the particulate emissions from No Bake Foundry Sand Handling System (Unit A) and Green Sand Foundry Sand Handling System (Unit D) which exhaust through stack S/V-1, utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM-10 includes filterable and condensable PM-10. Testing shall be conducted in accordance with Section C- Performance Testing.
- (b) During the period within 180 after issuance of this permit, the Permittee shall perform VOC testing for the VOC capture system and the natural gas fired thermal oxidizer (PCU-3) utilizing sampling and analyses of the input and output sand streams for total combustible organics and discharge gas sampling for VOC utilizing Methods 25 (40 CFR 60, Appendix A) for VOC, or other methods as approved by the Commissioner. This test shall be performed to establish the minimum duct pressure or fan amperage, and the minimum operating temperature to demonstrate compliance with the capture and control efficiencies in condition D.1.8. The overall capture and control efficiency will be determined by mass balance calculations using the test results. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

**D.1.11 Particulate Matter (PM)**

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In order to comply with conditions D.1.5, D.1.6 and D.1.7, the baghouses for particulate control identified as PCU-1 shall be in operation when either of the sand handling systems for the No Bake Foundry (Unit A) or the Green Sand Foundry (Unit D) is in operation. The baghouse identified as PCU-2 shall be in operation when metal melting and pouring operations are being performed at either the No Bake Foundry (Unit B) or the Green Sand Foundry (Unit E). The baghouse identified as PCU-4 shall be in operation when the Thermal Sand Reclaimer (Unit C) is in operation.

**D.1.12 VOC and HAPs**

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In order to comply with Conditions D.1.8(b), the stationary Thermal Oxidizer (PCU-3) shall be in operation and control emissions from the Thermal Sand Reclamation Operation (Unit C) at all times when the Thermal Sand Reclamation Operation (Unit C) is in operation.

**Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]**

**D.1.13 Thermal Oxidizer Temperature**

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- (a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer for measuring operating temperature. The output of this system shall be recorded as an hourly average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation,

Records, and Reports whenever the hourly average temperature of the thermal oxidizer is below 1200 °F. An hourly average temperature that is below 1200 °F is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

- (b) The Permittee shall determine the hourly average temperature from the most recent valid stack test that demonstrates compliance with limits in condition D.1.8, as approved by IDEM.
- (c) On and after the date the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the hourly average temperature of the thermal oxidizer is below the hourly average temperature as observed during the compliant stack test. An hourly average temperature that is below the hourly average temperature as observed during the compliant stack test is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

#### D.1.14 Parametric Monitoring

- (a) The Permittee shall determine fan amperage or duct pressure from the most recent valid stack test that demonstrates compliance with limits in condition D.1.8, as approved by IDEM.
- (b) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. When for any one reading, the duct pressure or fan amperage is outside the normal range as established in most recent compliant stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A reading that is outside the range as established in the most recent compliant stack test is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

#### D.1.15 Visible Emissions Notations

- (a) Visible emission notations of the baghouses (PCU-1, PCU-2, and PCU-4) stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation,

Implementation, Records, and Reports, shall be considered a deviation from this permit.

#### D.1.16 Parametric Monitoring

The Permittee shall record the total static pressure drop across each of the baghouses identified as PCU-1, PCU-2, and PCU-4, at least once per shift when the systems are in operation. When for any one reading, the pressure drop across the baghouses (PCU-1 and PCU-2) is outside the normal range of 6.0 and 8.0 inches of water and the baghouse (PCU-4) is outside the normal range of 3.0 to 12.0 or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge and Other Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

#### D.1.17 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags (PCU-1, PCU-2, and PCU-4) controlling the Units A, B, C, D and E operations. Inspections required by this condition shall not be performed in consecutive months. All defective bags shall be replaced.

#### D.1.18 Broken or Failed Bag Detection

In the event that bag failure has been observed:

- (a) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (b) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units

and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

## **Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]**

### **D.1.19 Record Keeping Requirements**

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- (a) To document compliance with condition D.1.8(a), the Permittee shall maintain records of the monthly usage of the binder in No Bake Foundry. Records necessary to demonstrate compliance shall be available within 30 days of the end of each compliance period.
- (b) To document compliance with Condition D.1.13, the Permittee shall maintain records of the continuous temperature records (on an hourly average basis) for the thermal oxidizer and the hourly average temperature used to demonstrate compliance during the most recent compliant stack test.
- (c) To document compliance with Condition D.1.15, the Permittee shall maintain records of visible emission notations of the baghouse PCU-1, PCU-2 and PCU-4 stack exhausts once per shift.
- (d) To document compliance with Condition D.1.16, the Permittee shall maintain per shift records of the total static pressure drop during normal operation for each baghouse.
- (e) To document compliance with Condition D.1.17, the Permittee shall maintain records of the results of the inspections required under Condition D.1.17.
- (f) To document compliance with Condition D.1.9, the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan.
- (g) To document compliance with Condition D.1.14, the Permittee shall maintain records of duct pressure and fan amperage once per day.
- (h) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

### **D.1.20 Reporting Requirements**

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A quarterly summary of the information to document compliance with Condition D.1.8(a) shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

## SECTION D.2

## FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-8-4(10)]:

#### Insignificant Activities

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.
  - (1) Two (2) natural gas fired sand heater cooler classifiers identified as EQ-3A and EQ-3B, and each rated at maximum heat input rating of 0.375 MMBtu/hr.
  - (2) Two (2) natural gas fired ladle torches identified as EQ-12A, with combined heat input rating of 1.5 MMBtu/hr.
  - (3) One (1) natural gas fired thermal oxidizer identified PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.
  - (4) One (1) natural gas fired autoclave boiler identified as EQ-19, and rated at maximum heat input rating of 0.89 MMBtu/hr. [326 IAC 6-2-4]
  - (5) One (1) natural gas fired ceramic mold furnace identified as EQ-20, and rated at maximum heat input rating of 2.52 MMBtu/hr.
- (b) The following VOC and HAP storage containers:
  - (1) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughput less than 12,000 gallons.
  - (2) Vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids.
- (c) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (d) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.
  - (1) Frame and cover welding operation identified as Unit M. [326 IAC 6-3-2]
  - (2) Laser cutting operation identified as Unit O. [326 IAC 6-3-2]
  - (3) Brazing operation booth identified as Unit W. [326 IAC 6-3-2]
- (e) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (f) Paved and unpaved roads and parking lots with public access.
- (g) Furnaces used for melting metals other than beryllium with a brim full capacity of less than or equal to 450 cubic inches by volume.
- (h) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
  - (1) Frame grinding operation identified as Unit N. [326 IAC 6-3-2]
- (i) A laboratory as defined in 326 IAC 2-7-1(21)(D).

- (j) Activities with emissions below insignificant thresholds not previously identified (i.e. VOC emission less than 3 lb/hr and particulate emission less than 5 lb/hr):
- (1) Immersion Cleaning of Machine Parts identified as Unit G. [326 IAC 8-3-2&5]
  - (2) Spray booth for impeller repair.
  - (3) One (1) stainless steel foundry employing the investment casting process (melting and pouring only), identified as Unit K, with maximum metal charge capacity of 310 pounds per hour.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

### **Emission Limitations and Standards [326 IAC 2-8-4(1)]**

#### **D.2.1 Particulate Emission Limitations for Sources of Indirect Heating [326 IAC 6-2-4]**

Pursuant to 326 IAC 6-2-4 (a) (Particulate Emission Limitations for Sources of Indirect Heating), the particulate emissions from Boiler EQ-19, shall be limited to 0.60 pounds of particulate matter per million British thermal units heat input.

#### **D.2.2 Particulate [326 IAC 6-3-2]**

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the investment casting foundry (Unit K) shall not exceed 1.17 pounds per hour when operating at a process weight rate of 0.155 tons per hour. The pounds per hour limitation was calculated using the following equation:

Interpolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour; and  
P = process weight rate in tons per hour

#### **D.2.3 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]**

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), for Immersion Cleaning Operation constructed after January 1, 1980, the Permittee shall:

- (a) Equip the cleaner with a cover;
- (b) Equip the cleaner with a facility for draining cleaned parts;
- (c) Close the degreaser cover whenever parts are not being handled in the cleaner;
- (d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
- (e) Provide a permanent, conspicuous label summarizing the operation requirements;
- (f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

#### **D.2.4 Volatile Organic Compounds (VOC) [326 IAC 8-3-5]**

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- (a) Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), for cold cleaner degreaser operations without remote solvent reservoirs constructed after July 1, 1990, the Permittee shall ensure that the following control equipment requirements are met:
- (1) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:
    - (A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F));
    - (B) The solvent is agitated; or
    - (C) The solvent is heated.
  - (2) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.
  - (3) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).
  - (4) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.
  - (5) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)):
    - (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
    - (B) A water cover when solvent is used is insoluble in, and heavier than, water.
    - (C) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.
- (b) Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator of a cold cleaning facility construction of which commenced after July 1, 1990, shall ensure that the following operating requirements are met:
- (1) Close the cover whenever articles are not being handled in the degreaser.

- (2) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.
- (3) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

**D.2.5 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) pounds per hour [326 IAC 6-3-2(c)]**

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Pursuant to 326 IAC 6-3-2(e), the allowable particulate emissions rate from any process not already regulated by 326 IAC 6-1 or any New Source Performance Standard, and which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour. This includes the following operations:

- (1) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.
  - (i) Frame and cover welding operation identified as Unit M.
  - (ii) Laser cutting operation identified as Unit O.
  - (iii) Brazing operation booth identified as Unit W.
- (2) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
  - (i) Frame grinding operation identified as Unit N.

**Compliance Determination Requirements**

There are no Compliance Determination Requirements applicable to these emission units.

**Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]**

There are no Compliance Monitoring Requirements applicable to these emission units.

**Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-16]**

There are no Record Keeping and Reporting Requirements applicable to these emission units.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)  
CERTIFICATION**

Source Name: Urschel Laboratories Incorporated  
Source Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
Mailing Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
FESOP No.: F127-17726-00037

**This certification shall be included when submitting monitoring, testing reports/results  
or other documents as required by this permit.**

Please check what document is being certified:

- ? Annual Compliance Certification Letter
- ? Test Result (specify) \_\_\_\_\_
- ? Report (specify) \_\_\_\_\_
- ? Notification (specify) \_\_\_\_\_
- ? Affidavit (specify) \_\_\_\_\_
- ? Other (specify) \_\_\_\_\_

I certify that, based on information and belief formed after reasonable inquiry, the statements and information  
in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**  
**OFFICE OF AIR QUALITY**  
**COMPLIANCE BRANCH**  
**P.O. Box 6015**  
**100 North Senate Avenue**  
**Indianapolis, Indiana 46206-6015**  
**Phone: 317-233-5674**  
**Fax: 317-233-5967**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)**  
**EMERGENCY OCCURRENCE REPORT**

Source Name: Urschel Laboratories Incorporated  
Source Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
Mailing Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
FESOP No.: F127-17726-00037

**This form consists of 2 pages**

**Page 1 of 2**

? This is an emergency as defined in 326 IAC 2-7-1(12)  
?The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and  
?The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-5967), and follow the other requirements of 326 IAC 2-7-16

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:

Control Equipment:

Permit Condition or Operation Limitation in Permit:

Description of the Emergency:

Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A

**Page 2 of 2**

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency?    Y    N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO <sub>2</sub> , VOC, NO <sub>x</sub> , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

A certification is not required for this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**FESOP Quarterly Report**

Source Name: Urschel Laboratories Incorporated  
Source Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
Mailing Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
FESOP No.: F127-17726-00037  
Facility: No Bake Foundry (Unit A and Unit B)  
Parameter: Binder Usage (VOC Emissions)  
Limit: The total binder usage in No Bake Foundry shall be limited to 110,500 pounds per twelve (12) consecutive month period with compliance determined at the end of each month. This is equivalent to VOC emissions of 3.65 and 11.33 tons per year from emission Units A and B, respectively.

YEAR: \_\_\_\_\_

Month	Column 1	Column 2	Column 1 + Column 2
	Binder Usage This Month	Binder Usage Previous 11 Months	Binder Usage 12 Month Total
Month 1			
Month 2			
Month 3			

? No deviation occurred in this quarter.

? Deviation/s occurred in this quarter.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)  
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Urschel Laboratories Incorporated  
Source Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
Mailing Address: 2503 Calumet Avenue, Valparaiso, IN 46383  
FESOP No.: F127-17726-00037

Months: \_\_\_\_\_ to \_\_\_\_\_ Year: \_\_\_\_\_

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

? NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

? THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

**Permit Requirement** (specify permit condition #)

**Date of Deviation:**

**Duration of Deviation:**

**Number of Deviations:**

**Probable Cause of Deviation:**

**Response Steps Taken:**

**Permit Requirement** (specify permit condition #)

**Date of Deviation:**

**Duration of Deviation:**

**Number of Deviations:**

**Probable Cause of Deviation:**

<b>Response Steps Taken:</b>
------------------------------

<b>Permit Requirement</b> (specify permit condition #)	
<b>Date of Deviation:</b>	<b>Duration of Deviation:</b>
<b>Number of Deviations:</b>	
<b>Probable Cause of Deviation:</b>	
<b>Response Steps Taken:</b>	

  

<b>Permit Requirement</b> (specify permit condition #)	
<b>Date of Deviation:</b>	<b>Duration of Deviation:</b>
<b>Number of Deviations:</b>	
<b>Probable Cause of Deviation:</b>	
<b>Response Steps Taken:</b>	

  

<b>Permit Requirement</b> (specify permit condition #)	
<b>Date of Deviation:</b>	<b>Duration of Deviation:</b>
<b>Number of Deviations:</b>	
<b>Probable Cause of Deviation:</b>	
<b>Response Steps Taken:</b>	

Form Completed By: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

Attach a signed certification to complete this report.

**Indiana Department of Environmental Management  
Office of Air Quality**

**Addendum to the  
Technical Support Document (TSD) for a Federally Enforceable State Operating  
Permit (FESOP) and New Source Review**

**Source Background and Description**

**Source Name:** Urschel Laboratories Incorporated  
**Source Location:** 2503 Calumet Avenue, Valparaiso, IN 46383  
**County:** Porter  
**SIC Code:** 3556  
**Operation Permit No.:** F127-17726-00037  
**Permit Reviewer:** Adeel Yousuf / EVP

On January 20, 2004, the Office of Air Quality (OAQ) had a notice published in the Vidette Times in Munster, Indiana, stating that Urschel Laboratories Incorporated had applied for a Federally Enforceable State Operating Permit (FESOP) to operate a bronze and stainless steel foundry. The notice also stated that OAQ proposed to issue a Federally Enforceable State Operating Permit for this operation and provided information on how the public could review the proposed FESOP and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this FESOP should be issued as proposed.

On February 11, 2004, James Kielman of Urschel Laboratories Inc., submitted comments on the proposed FESOP permit. The summary of the comments and corresponding responses is as follows (bolded language has been added and the language with a line through it has been deleted).

**Comment 1**

Condition A.2—Emission Units and Pollution Control Equipment Summary. Several changes should be made to this condition, including the following:

- (1) The term “and associated conveyance equipment” should be inserted after the term “sand hoppers” in subsection A.2(b)(1) before the word “with” to reflect that there is associated conveyance equipment.
- (2) The extraneous letter “c” should be deleted from the end of subsection A.2(c).

Condition A.2 should be modified, as follows:

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]  
This stationary source consists of the following emission units and pollution control devices.

\* \* \*

- (b) One (1) No Bake Foundry operation, to be installed in 2003, consisting of the following:
  - (1) One (1) Sand handling system identified as Unit A, consisting of (2) sand silos, two (2) sand hoppers **and associated conveyance equipment**, with maximum rate of 5.04 tons of sand per hour, and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.

\* \* \*

- (c) One (1) Plasma cutting operation identified as Unit P with maximum cutting rate of 2,220 inches per hour (equivalent to process weight rate of 1.0 ton per hour) and exhausting to S/V-4e.

## Response 1

Condition A.2 has been revised as requested.

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

This stationary source consists of the following emission units and pollution control devices:

- (b) One (1) No Bake Foundry operation, to be installed in 2003, consisting of the following:
- (1) One (1) Sand handling system identified as Unit A, consisting of two (2) sand silos, two (2) sand hoppers **and associated conveyance equipment**, with maximum rate of 5.04 tons of sand per hour, and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.

\* \* \*

- (c) One (1) Plasma cutting operation identified as Unit P with maximum cutting rate of 2,220 inches per hour (equivalent to process weight rate of 1.0 ton per hour) and exhausting to S/V-4.e

## Comment 2

Section D.1—Facility Description. The following changes to the Section D.1 Description, as follows:

### SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

\* \* \*

- (b) One (1) No Bake Foundry operation, to be installed in 2003, consisting of the following:
- (1) One (1) Sand handling system identified as Unit A, consisting of two (2) sand silo, two (2) sand hoppers and associated conveyance equipment, with maximum rate of 5.04 tons of sand per hour, and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.

\* \* \*

- ~~(c)(a)~~ One (1) Plasma cutting operation identified as Unit P with maximum cutting rate of 2,220 inches per hour (equivalent to process weight rate of 1.0 ton per hour) and exhausting to S/V-4.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

## Response 2

Section D.1 Facility Operation Conditions has been revised as follows:

SECTION D.1

FACILITY OPERATION CONDITIONS

**Facility Description [326 IAC 2-8-4(10)]:**

- (b) One (1) No Bake Foundry operation, to be installed in 2003, consisting of the following:
- (1) One (1) Sand handling system identified as Unit A, consisting of two (2) sand silo, two (2) sand hoppers **and associated conveyance equipment**, with maximum rate of 5.04 tons of sand per hour, and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.

\* \* \*

- ~~(c)(a)~~ One (1) Plasma cutting operation identified as Unit P with maximum cutting rate of 2,220 inches per hour (equivalent to process weight rate of 1.0 ton per hour) and exhausting to S/V-4.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

**Comment 3**

Condition D.1.9—Preventive Maintenance Plan. The permit includes preventive maintenance plan requirements for emission control devices and “facilities.” It has never been the intent or the practice for the preventive maintenance requirements to apply to emission units—it is the intent of the rule to only apply to control devices. This is why the first section of 326 IAC 1-6-3 refers explicitly to “emission control devices.”

In addition, while there may be some cases where maintenance of the process equipment might change emission rates, that is not the case here. In this case, it is the baghouses and the thermal oxidizer that control emissions, not the process equipment. Therefore, for this Section D.1, a preventive maintenance plan should only be required for the baghouses (PCU-1, PCU-2, and PCU-4) and the thermal oxidizer (PCU-3). The PMP requirement should be modified as follows:

**D.1.9 Preventive Maintenance Plan [326 IAC 2-8-4(9)]**

A Preventive Maintenance Plan, in accordance with Section B – Preventive Maintenance Plan, of this permit, is required for **baghouses PCU-1, PCU-2, and PCU-4, and the thermal oxidizer PCU-3.** ~~the facilities with emission control devices.~~

**Response 3**

The Preventive Maintenance Plan requirement must be included in every applicable FESOP permit pursuant to 326 IAC 2-8-4(9). Both of those rules refer back to the Preventive Maintenance Plan requirement as described in 326 IAC 1-6-3. This Preventive Maintenance Plan rule sets out the requirements for:

- (1) Identification of the individuals responsible for inspecting, maintaining and repairing the emission control equipment (326 IAC 1-6-3(a)(1)),
- (2) The description of the items or conditions in the facility that will be inspected and the inspection schedule for said items or conditions (326 IAC 1-6-3(a)(2)), and
- (3) The identification and quantification of the replacement parts for the facility which the permittee will maintain in inventory for quick replacement (326 IAC 1-6-3(a)(2)).

It is clear from the structure of the wording in 326 IAC 1-6-3 that the PMP requirement affects the entirety of the applicable facilities. Only 326 IAC 1-6-3(a)(1) is limited, in that it requires identification of the personnel in charge of only the emission control equipment, and not any other facility equipment.

The OAQ has determined that a preventive maintenance plan is required for the emission units and their control devices in section D.1. Maintaining the emission units in good working order is as important as maintaining the control devices in good working order to ensure compliance with the applicable emission limits. Therefore, Condition D.1.9 language has been revised to reflect that the PMP is required for the facilities and any control devices. Also, “facilities” and “emission control devices” have been specified.

#### D.1.9 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the facilities **(Units A, B, C, D, and E)** with **and any** emission control devices **(PCU-1, PCU-2, PCU-3, and PCU-4)**.

#### **Comment 4**

Condition D.1.11—Particulate Matter (PM). It is unclear as to what the word “facilities” refers to in this condition. To clarify what pollution control equipment should be operated with what emission units we recommend the following change in the wording:

#### **D.1.11 Particulate Matter (PM)**

In order to comply with conditions D.1.5, D.1.6 and D.1.7, the baghouses for particulate control identified as PCU-1 **shall be in operation when either of the sand handling systems for the No Bake Foundry (Unit A) or the Green Sand Foundry (Unit D) is in operation. The baghouse identified as PCU-2 shall be in operation when metal melting and pouring operations are being performed at either the No Bake Foundry (Unit B) or the Green Sand Foundry (Unit E). The baghouse identified as PCU-4 shall be in operation when the Thermal Sand Reclaimer (Unit C) is in operation.** PCU-2, and PCU-4 shall be in operation and control emissions from the No Bake Foundry (Units A and B), Green Sand Foundry (Units D and E) and Thermal Sand Reclaimer (Unit C) at all times that these facilities are in operation.

#### **Response 4**

As per Permittee’s request, condition D.1.11 has been revised as follows to specifically define the “facilities”.

#### D.1.11 Particulate Matter (PM)

In order to comply with conditions D.1.5, D.1.6 and D.1.7, the baghouses for particulate control identified as PCU-1 **shall be in operation when either of the sand handling systems for the No Bake Foundry (Unit A) or the Green Sand Foundry (Unit D) is in operation. The baghouse identified as PCU-2 shall be in operation when metal melting and pouring operations are being performed at either the No Bake Foundry (Unit B) or the Green Sand Foundry (Unit E). The baghouse identified as PCU-4 shall be in operation when the Thermal Sand Reclaimer (Unit C) is in operation.** PCU-2, and PCU-4 shall be in operation and control emissions from the No Bake Foundry (Units A and B), Green Sand Foundry (Units D and E) and Thermal Sand Reclaimer (Unit C) at all times that these facilities are in operation.

#### **Comment 5**

Condition D.1.12—VOC and HAPs. It is unclear as to what the word “facility” refers to. The Thermal Sand Reclaimer will be operated intermittently as needed to provide reclaimed sand to storage silos for the No Bake Foundry. There will be times when the Thermal Sand Reclaimer will be operating when the No Bake Foundry is not operating and there will be times when the Thermal Sand Reclaimer will not be operating when the No Bake Foundry is operating.

To control VOC and organic HAPs, the Thermal Oxidizer need only operate when the Thermal Sand Reclaimer is operating. To clarify this, we recommend the following wording changes:

**D.1.12 VOC and HAPs**

---

In order to comply with Conditions D.1.8(b), the stationary Thermal Oxidizer (PCU-3) ~~for the Thermal Sand Reclaimer (Unit C)~~ shall be in operation and control emissions from the Thermal Sand Reclaimer (Unit C) at all times when the **Thermal Sand Reclaimer (Unit C)** facility is in operation.

**Response 5**

As per Permittee's request, condition D.1.12 has been revised to specifically define the "facilities". Also, "Thermal Sand Reclaimer" has been replaced by "Thermal Sand Reclamation Operation" to be consistent with the correct facility description.

**D.1.12 VOC and HAPs**

---

In order to comply with Conditions D.1.8(b), the stationary Thermal Oxidizer (PCU-3) ~~for the Thermal Sand Reclaimer (Unit C)~~ shall be in operation and control emissions from the Thermal Sand Reclaimer **Reclamation Operation** (Unit C) at all times when the **Thermal Sand Reclamation Operation (Unit C)** facility is in operation.

**Comment 6**

Urschel Laboratories requests that IDEM designate the permit to become effective immediately upon as allowed by Indiana law and not include any period of delay.

**Response 6**

The permit will be effective upon issuance. There is no change as a result of this comment.

Upon further review, the OAQ has decided to make the following changes to the FESOP Permit. Bolded language has been added and the language with a line through it has been deleted.

1. Tables of contents sections has been revised as follows to add the correct rule citations.

B.22 Annual Fee Payment **[326 IAC 2-7-19]** [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

\* \* \*

Corrective Actions and Response Steps [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

\* \* \*

D.1.8 Volatile Organic Compounds (VOCs) [326 IAC 8-1-6][326 IAC 2-3] **[326 IAC 2-8]**

2. Section A.3 has been revised to correct the rule cite and replace 'incinerator' with 'oxidizer' to be consistent.

**SECTION A**

**SOURCE SUMMARY**

**A.3 Insignificant Activities** [326 IAC 2-7-1(21)] [326 IAC 2-8-3(c)(3)(I)]

---

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.

\* \* \*

- (3) One (1) natural gas fired thermal incinerator **oxidizer** identified as PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.

\* \* \*

- (i) A laboratory as defined in 326 IAC 2-7-1(2021)(CD).

Section D.2 (Facility Descriptions) has been revised accordingly.

## SECTION D.2 FACILITY OPERATION CONDITIONS

### Facility Description [326 IAC 2-8-4(10)]:

#### Insignificant Activities

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.

\* \* \*

- (3) One (1) natural gas fired thermal incinerator **oxidizer** identified PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.

\* \* \*

- (e) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.

\* \* \*

- (i) A laboratory as defined in 326 IAC 2-7-1(2021)(CD).

\* \* \*

3. Condition B.12 has been revised to remove an extra comma from B.12(c).

#### B.12 Preventive Maintenance Plan [326 IAC 1-6-3] [326 IAC 2-8-4(9)] [326 IAC 2-8-5(a)(1)]

- (c) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMP does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

4. Condition B.13 has been revised to mention IDEM Northwest Regional Office and the phone number has been revised as well.

#### B.13 Emergency Provisions [326 IAC 2-8-12]

- (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, **and IDEM Northwest Regional Office** within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone No.: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section) or,

Telephone No.: 317-233-5674 (ask for Compliance Section)

Facsimile No.: 317-233-5967

Telephone No.: 219-881-672512 (IDEM Northwest Regional Office)

Facsimile No.: 219-881-6745 (IDEM Northwest Regional Office)

5. Condition C.12 has been revised to clarify the language.

C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing ~~performed~~ required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63 or other approved methods as specified in this permit.

6. Conditions C.9, C.14 and C.19 have been updated to change "source" to "Permittee". Also, reference to 40 CFR 68 has been added in Condition C.14.

C.9 Performance Testing [326 IAC 3-6]

- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the ~~source~~ **Permittee** submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

C.14 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]

If a regulated substance as defined in **40 CFR 68** is present at a source in more than a threshold quantity, the ~~source~~ **Permittee** must comply with the applicable requirements of 40 CFR 68.

C.19 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

- (a) The ~~source~~ **Permittee** shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

7. Number "5" has been added after word "five" in section (b) of Condition D.1.10.

D.1.10 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

- (b) During the period within 180 after issuance of this permit, the Permittee shall perform VOC testing for the VOC capture system and the natural gas fired thermal oxidizer (PCU-3) utilizing sampling and analyses of the input and output sand streams for total combustible organics and discharge gas sampling for VOC utilizing Methods 25 (40 CFR 60, Appendix A) for VOC, or other methods as approved by the Commissioner. This test shall be performed to establish the minimum duct pressure or fan amperage, and the minimum operating temperature to demonstrate compliance with the capture and control efficiencies in condition D.1.8. The overall capture and control efficiency will be determined by mass balance calculations using the test results. This test shall be repeated at least once every five **(5)** years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing.

8. The quarterly inspections do not need to be conducted in the last month of the quarter, but they should not occur in consecutive months. Therefore, Condition D.1.17 has been revised accordingly.

D.1.17 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags (PCU-1, PCU-2, and PCU-4) controlling the Units A, B, C, D and E operations. **Inspections required by this condition shall not be performed in consecutive months.** All defective bags shall be replaced.

9. IDEM, OAQ has determined that the monitoring requirement of duct pressure or fan amperage in Condition D.1.14 shall be recorded in order to show compliance. Therefore, Condition D.1.19 has been updated to require record keeping for duct pressure or fan amperage readings in Condition D.1.14.

D.1.19 Record Keeping Requirements

\* \* \*

- (f) To document compliance with Condition D.1.9, the Permittee shall maintain records of any additional inspections prescribed by the Preventive Maintenance Plan.
- (g) To document compliance with Condition D.1.14, the Permittee shall maintain records of duct pressure and fan amperage once per day.**
- (gh) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

10. Condition D.2.1 has been revised to correct the minor typographical error.

D.2.1 Particulate Emission Limitations for Sources of Indirect Heating [326 IAC 6-2-4]

Pursuant to 326 IAC 6-2-4 (a) (Particulate ~~E~~mission ~~L~~imitations for ~~S~~ources of ~~I~~ndirect ~~H~~eating), the particulate emissions from Boiler EQ-19, shall be limited to 0.60 pounds of particulate matter per million British thermal units heat input.

## **Indiana Department of Environmental Management Office of Air Quality**

### **Technical Support Document (TSD) for a Federally Enforceable Operating Permit (FESOP) and New Source Review**

#### **Source Background and Description**

**Source Name:** Urschel Laboratories Incorporated  
**Source Location:** 2503 Calumet Avenue, Valparaiso, IN 46383  
**County:** Porter  
**SIC Code:** 3556  
**Operation Permit No.:** F127-17726-00037  
**Permit Reviewer:** Adeel Yousuf / EVP

The Office of Air Quality (OAQ) has reviewed a FESOP application from Urschel Laboratories Incorporated relating to the operation of a green-sand bronze foundry, a small investment casting stainless steel foundry and a new no bake foundry.

#### **Source Definition**

The plant currently operates a small foundry which produces bronze castings using the green sand moldmaking process and phenolic shell coremaking process. This permit application includes the modification to the existing plant in the form of the addition of the new foundry. The new foundry will produce small castings using the phenolic urethane no bake moldmaking and coremaking process. This source currently operates under the Exemption No. 127-16576-00037, however due to this modification this source will transition to a FESOP.

#### **Permitted Emission Units and Pollution Control Equipment**

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) Green Sand Foundry operation, installed in 1990, consisting of the following:
  - (1) One (1) Sand handling system identified as Unit D, consisting of return sand storage bin, sand feeder hopper, surge hopper, batch hopper, prepared sand feeder hopper, two (2) molder hoppers and associated conveyance equipment, with maximum rate of 25 tons per day and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
  - (2) Electric induction melting furnace, pouring, casting and cooling operation identified as Unit E, with maximum charge capacity of 0.3 tons of metal per hour with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.

### **Unpermitted Emission Units and Pollution Control Equipment**

The source also consists of the following unpermitted facilities/units:

- (a) One (1) Plasma cutting operation identified as Unit P with maximum cutting rate of 2,220 inches per hour (equivalent to process weight rate of 1.0 ton per hour) and exhausting to S/V-4.

### **New Emission Units and Pollution Control Equipment Receiving New Source Review Approval**

The application includes information relating to the prior approval for the construction and operation of the following equipment pursuant to 326 IAC 2-8-4(11):

- (a) One (1) No Bake Foundry operation, to be installed in 2003, consisting of the following:
  - (1) One (1) Sand handling system identified as Unit A, consisting of two (2) sand silos, two (2) sand hoppers, with maximum rate of 5.04 tons of sand per hour, and particulate emissions controlled by a Sand Handling Baghouse PCU-1 and exhausting to S/V-1.
  - (2) Electric induction melting furnace, pouring, casting and cooling operation identified as Unit B, with maximum charge capacity of 0.6 ton of metals per hour and maximum binder usage of 26 lbs/ton of sand, with particulate emissions controlled by a baghouse PCU-2 and exhausting to S/V-2.
  - (3) One (1) thermal sand reclamation operation identified as Unit C, controlling VOCs from the spent sand by a thermal oxidizer (PCU-3) with maximum system capacity of 1000 lbs sand per hour, equipped with a baghouse PCU-4 and exhausting to S/V-3.

### **Insignificant Activities**

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (a) Natural gas-fired combustion sources with heat input equal to or less than ten million (10,000,000) Btu per hour.
  - (1) Two (2) natural gas fired sand heater cooler classifiers identified as EQ-3A and EQ-3B, and each rated at maximum heat input rating of 0.375 MMBtu/hr.
  - (2) Two (2) natural gas fired ladle torches identified as EQ-12A, with combined heat input rating of 1.5 MMBtu/hr.
  - (3) One (1) natural gas fired thermal incinerator identified as PCU-3, and rated at maximum heat input rating of 0.465 MMBtu/hr.
  - (4) One (1) natural gas fired autoclave boiler identified as EQ-19, and rated at maximum heat input rating of 0.89 MMBtu/hr. [326 IAC 6-2-4]
  - (5) One (1) natural gas fired ceramic mold furnace identified as EQ-20, and rated at maximum heat input rating of 2.52 MMBtu/hr.
- (b) The following VOC and HAP storage containers:
  - (1) Storage tanks with capacity less than or equal to 1,000 gallons and annual throughput less than 12,000 gallons.

- (2) Vessels storing lubricating oils, hydraulic oils, machining oils, and machining fluids.
- (c) Machining where an aqueous cutting coolant continuously floods the machining interface.
- (d) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.
  - (1) Frame and cover welding operation identified as Unit M. [326 IAC 6-3-2]
  - (2) Laser cutting operation identified as Unit O. [326 IAC 6-3-2]
  - (3) Brazing operation booth identified as Unit W. [326 IAC 6-3-2]
- (e) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (f) Paved and unpaved roads and parking lots with public access.
- (g) Furnaces used for melting metals other than beryllium with a brim full capacity of less than or equal to 450 cubic inches by volume.
- (h) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.
  - (1) Frame grinding operation identified as Unit N. [326 IAC 6-3-2]
- (i) A laboratory as defined in 326 IAC 2-7-1(20)(C).
- (j) Activities with emissions below insignificant thresholds not previously identified (i.e. VOC emission less than 3 lb/hr and particulate emission less than 5 lb/hr):
  - (1) Immersion Cleaning of Machine Parts identified as Unit G. [326 IAC 8-3-2&5]
  - (2) Spray booth for impeller repair.
  - (3) One (1) stainless steel foundry employing the investment casting process (electric induction melting furnace and pouring operation only), identified as Unit K, with maximum metal charge capacity of 310 pounds per hour.

### Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

- (a) Construction Permit PC (64) 1851, issued on May 9, 1990; and
- (b) Exemption 127-7091-00037, issued on February 20, 1997.
- (c) Exemption 127-16576-00037, issued on May 15, 2003

### Enforcement Issue

- (a) IDEM is aware that equipment has been constructed and operated prior to receipt of the

proper permit. The subject equipment is listed in this Technical Support Document under the condition entitled *Unpermitted Emission Units and Pollution Control Equipment*.

- (b) IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

## Recommendation

The staff recommends to the Commissioner that the FESOP be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An administratively complete FESOP application for the purposes of this review was received on October 21, 2003. Additional information was received on November 13, 2003.

There was no notice of completeness letter mailed to the source.

## Emission Calculations

The calculations submitted by the applicant have been verified and found to be accurate and correct. These calculations are provided in Appendix A of this document, pages 1 through 17.

## Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Pollutant	Unrestricted Potential Emissions (tons/yr)
PM	834.87
PM-10	221.75
SO <sub>2</sub>	0.19
VOC	151.11
CO	13.24
NO <sub>x</sub>	2.73

Note: For the purpose of determining Title V applicability for particulates, PM-10, not PM, is the regulated pollutant in consideration.

HAP's	Unrestricted Potential Emissions (tons/yr)
Xylene	less than 10
Manganese	less than 10
Chromium	less than 10
Phenol	less than 10
Napthalene	less than 10
TOTAL	greater than 25

- (a) The unrestricted potential to emit of VOC is equal to or greater than 25 tons per year and the source is located in Porter County. Therefore, the source is subject to the provisions of 326 IAC 2-7.
- (b) The unrestricted potential to emit of any single HAP is equal to or greater than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination HAPs is greater than or equal to twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7.
- (c) This source, otherwise required to obtain a Title V permit, has agreed to accept a permit with federally enforceable limits that restrict its PTE to below the Title V emission levels. Therefore, this source will be issued a Federally Enforceable State Operating Permit (FESOP), pursuant to 326 IAC 2-8.
- (d) Fugitive Emissions  
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive emissions are not counted toward determination of PSD and Emission Offset applicability.

#### Potential to Emit After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Federally Enforceable State Operating Permit.

	Potential to Emit After Issuance (tons/year)						
Process/emission unit	PM	PM-10	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs
Unit A (No Bake Foundry Sand Handling System)	30.53	30.53	--	6.41	--	--	0.90 (single) 1.34 (total)
Unit B (No Bake Foundry Melting/Pouring Equipment)	12.74	12.74	0.03	11.33	2.06	0.01	0.68 (single) 5.87 (total)
Unit C (No Bake Foundry: Thermal Sand Reclamation Unit)	11.25	11.25	--	0.06	--	--	negl.
Unit D (Green Sand Foundry Sand Handling System)	18.44	18.44	--	0.06	--	--	negl.

Unit E (Green Sand Foundry Melting/Pouring Equipment)	8.01	8.01	--	--	--	--	negl.
Unit P (Plasma Cutting)	18.0	18.0	--	--	--	--	1.07 (single) 2.05 (total)
Insignificant Activities *	0.83	0.98	0.02	6.27	2.25	2.68	0.33 (single) 1.22 (total)
Total PTE After Issuance	99.80	99.95	0.05	24.13	4.31	2.69	1.20 (single) 10.49 (total)

Note: PM and PM10 emission limits for Units B through P are based on 326 IAC 6-3-2 allowables, while the PM and PM10 emission limit for Unit A consists of the remaining FESOP PM10 allowable to reach the 100 tons per year limit.

\* Insignificant activities consist of natural gas combustion operations, Grinding and Laser cutting operations, Investment Cast foundry operation and Immersion cleaning operation.

### County Attainment Status

The source is located in Porter County.

Pollutant	Status
PM-10	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	severe nonattainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Porter County has been designated as nonattainment for ozone.
- (b) Porter County has been classified as attainment or unclassifiable for all other criteria pollutants.

### Federal Rule Applicability

- (a) One (1) autoclave boiler (EQ-19) constructed in 1990 and rated at 0.89 MMBtu per hour is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.40c, Subpart Dc) because the boiler's capacity is less than the rule applicability threshold of 10 MMBtu per hour.

- (b) The source is not subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR Parts 60.130 as Subpart M (Standards of Performance for Secondary Brass and Bronze Production Plants)) because this source does not melt any post-consumer scrap materials and is not considered a secondary metal production facility. Therefore, the requirements under this subpart are not applicable.
  - (c) There are no Emission Standards for Hazardous Air Pollutants (326 IAC 14) applicable to this metal alloy casting plant. The source does not process beryllium ore, beryllium oxide, beryllium alloys, or beryllium containing waste as defined under 40 CFR 61.30, therefore, Subpart C (and 326 IAC 14-3) does not apply.
  - (d) The degreasing operation identified as Immersion Cleaning, an insignificant activity, is not subject to the National Emission Standards for Hazardous Air Pollutants, 326 IAC 20, (40 CFR 63, Subpart T). Subpart T applies to degreasing operations using one of six listed halogenated solvents, or any combination of the solvents in a concentration greater than 5 percent by weight, as a cleaning or drying agent. The source does not use the regulated halogenated solvents in the degreasing operation; therefore, Subpart T does not apply.
  - (e) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP), 326 IAC 20, (40 CFR Part 63.7680, Subpart EEEEE (Iron and Steel Foundries)), because this source is not a major source of HAP. The source has chosen to limit the source wide emissions of any combination of HAPs and any single HAP to less than 25 and 10 tons per twelve (12) consecutive month period, respectively.
  - (e) The requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not applicable to this source. Generally, such requirements apply to a Part 70 source that involves a pollutant-specific emissions unit (PSEU), as defined in 40 CFR 64.1, that meets the following criteria:
    - (1) the unit is subject to an emission limitation or standard for an applicable regulated air pollutant,
    - (2) the unit uses a control device as defined in 40 CFR 64.1 to comply with that emission limitation or standard, and
    - (3) the unit has a potential to emit before controls equal to or greater than the applicable Part 70 major source threshold for the regulated pollutant.
- As a FESOP source, this source has accepted federally enforceable limits such that the requirements of 326 IAC 2-7 (Part 70) do not apply. Therefore, the requirements of 40 CFR 64, Compliance Assurance Monitoring, are not applicable to this source.
- (f) The requirements of Section 112(j) of the Clean Air Act (40 CFR Part 63.50 through 63.56) are not applicable to this source, because the source has a limited potential to emit of less than 10 tons per year of a single HAP and less than 25 tons per year of the combination of HAPs.

**State Rule Applicability - Entire Source**

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it is located in Porter County, a specifically listed county and has the potential to emit more than ten (10) tons per year of VOC. Pursuant to this rule, the owner/operator of the source must submit an emission statement for the source. The statement must be received in accordance with the compliance schedule specified in 326 IAC 2-6 and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8).

326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 2-3 (Emission Offset)

Pursuant to 326 IAC 2-2, this source constructed in 1990 is not considered a major source because the potential to emit of all regulated pollutants are less than 100 tons per year and the potential to emit of VOC is less than 25 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) do not apply.

326 IAC 2-4.1-1 (New Source Toxics Control)

326 IAC 2-4.1-1 applies to new or reconstructed facilities with potential emissions of any single HAP equal or greater than ten (10) tons per twelve (12) month period and potential emissions of a combination of HAPs greater than or equal to twenty-five (25) tons per twelve (12) month period. This source is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control) because it has potential single HAP and total HAPs emission of less than 10 and 25 tons per year, respectively.

326 IAC 2-8-4 (FESOP)

This source is subject to 326 IAC 2-8-4 (FESOP). Pursuant to this rule, the following conditions shall apply:

(a) The PM and PM-10 emissions from:

- (1) the No Bake Foundry Sand Handling System (Unit A) shall not exceed 6.97 pounds per hour, which is equivalent to 30.53 tons per year;
- (2) the No Bake Foundry Melting/Pouring Operations (Unit B) shall not exceed 2.91 pounds per hour, which is equivalent to 12.74 tons per year;
- (3) the Thermal Sand Reclaimer (Unit C) shall not exceed 2.57 pounds per hour, which is equivalent to 11.25 tons per year;
- (4) the Green Sand Foundry Sand Handling System (Unit D) shall not exceed 4.21 pounds per hour, which is equivalent to 18.44 tons per year;
- (5) the Green Sand Foundry Metal/Pouring Operations (Unit E) shall not exceed 1.83 pounds per hour, which is equivalent to 8.01 tons per year; and
- (6) the Plasma cutting operations (Unit P) shall not exceed 4.10 pounds per hour,

which is equivalent to 18.0 tons per year.

- (b) The total binder usage in No Bake Foundry shall be limited to 110,500 pounds per twelve (12) consecutive month period with compliance determined at the end of each month (equivalent to VOC emissions factor of 0.066 lb VOC/lb binder). This is equivalent to VOC emissions of 3.65 and 11.33 tons per year from emission Units A and B, respectively.
- (c) The VOC emissions from the Thermal Sand Reclaimer (Unit C) shall not exceed 0.06 tons per year based on control by the Thermal Oxidizer (PCU-3) with overall VOC control efficiency of 99.9%.

Compliance with above conditions shall limit the source-wide PM and PM10 emissions to less than 100 tons per twelve consecutive month period; and VOC, single HAP, and total HAPs emissions to less than 25, 10 and 25 tons per twelve (12) consecutive month period with compliance determined at the end of each month, respectively. Therefore, the requirements of 326 IAC 2-7 (Part 70) do not apply. These limits will also render 326 IAC 2-3 (Emission Offset) not applicable.

#### 326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### 326 IAC 6-4 (Fugitive Dust Emissions)

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

#### 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

This source is not subject to 326 IAC 6-5, for fugitive particulate matter emissions, because the fugitive particulate matter emissions from this source are less than 25 tons per year.

### State Rule Applicability - Individual Facilities

#### 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating)

The one (1) natural gas fired boiler (EQ-19 constructed after 1983), with a maximum heat input capacity rating of 0.89 MMBtu per hour, is subject to the particulate matter limitations of 326 IAC 6-2-4. Pursuant to this rule, particulate emissions from indirect heating facilities constructed after September 21, 1983, shall be limited by the following equation:

$$Pt = 1.09/Q^{0.26}$$

where: Pt = maximum allowable particulate matter (PM) emitted per MMBtu heat input  
Q = total source maximum operation capacity rating = 0.89 MMBtu/hr

$$Pt = 1.09/0.89^{0.26} = 1.123 \text{ lbs PM/MMBtu}$$

However, pursuant to 326 IAC 6-2-4(a), because the maximum heat input capacity is less than 10 MMBtu/hr, the boiler is limited to emissions of less than 0.6 lbs PM/MMBtu.

compliance calculation:

Potential PM emissions for boiler (EQ-19) = 1.9 lb PM/MMCF \* (1/1000) (MMCF/MMBtu) = 0.0019 lbs PM/MMBtu

Potential PM emissions for the boiler EQ-19 (0.0019 lbs PM/MMBtu) are less than the allowable 0.60 lbs PM/MMBtu, therefore the boiler will comply with the requirements of 326 IAC 6-2-4.

326 IAC 8-1-6 (General Reduction Requirements)

This rule applies to facilities located anywhere in the state that were constructed on or after January 1, 1980, which have potential volatile organic compound (VOC) emissions of 25 tons per year or more, and are not otherwise regulated by other provisions of Article 8. This source shall limit the binder usage in the No Bake Foundry to less than 110,500 pounds per year (equivalent to VOC emissions factor of 0.066 lb VOC/lb binder); and the thermal oxidizer shall control the VOC emissions from the Thermal Sand Reclaimer to 0.06 tons per year. This will limit the source wide potential to emit VOC to less than 25 tons per year. Therefore, rule 326 IAC 8-1-6 does not apply to this source.

326 IAC 6-3-2 ( Particulate Emission Limitations for Manufacturing Processes)

- (a) Pursuant to 326 IAC 6-3-2 the particulate emissions from the foundry operations shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and  
P = process weight rate in tons per hour

Facilities	Process Weight Rate (tons/hr)	Allowable Particulate Emissions (lb/hr)	Compliance Calculations (lb/hr)
Unit A (No Bake Foundry Sand Handling System)	5.04	12.12	1.16
Unit B (No Bake Foundry Melting/Pouring Equipment)	0.60	2.91	0.26
Unit C (No Bake Foundry: Thermal Sand Reclamation Unit)	0.50	2.57	0.40
Unit D (Green Sand Foundry Sand Handling System)	1.04	4.21	0.29

Unit E (Green Sand Foundry Melting/Pouring Equipment)	0.30	1.83	0.15
Unit P (Plasma Cutting)	1.0	4.10	4.0
Unit K (Investment Casting Foundry; Melting/Pouring)	0.155	1.17	0.066

These facilities are in compliance with these allowable particulate emissions, since their emissions after control are less than the allowable particulate emissions.

The baghouses (PCU-1, PCU-2, and PCU-4) shall be in operation at all times the foundry equipment are in operation, in order to comply with this limit.

(b) Pursuant to 326 IAC 6-3-2(e)(2), the allowable particulate emissions rate from any process which has a maximum process weight rate less than 100 pounds per hour shall not exceed 0.551 pounds per hour. This includes the following equipment, as insignificant activities:

(1) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment.

- (i) Frame and cover welding operation identified as Unit M.
- (ii) Laser cutting operation identified as Unit O.
- (iii) Brazing operation booth identified as Unit W.

(2) Grinding and machining operations controlled with fabric filters, scrubbers, mist collectors, wet collectors and electrostatic precipitators with a design grain loading of less than or equal to 0.03 grains per actual cubic foot and a gas flow rate less than or equal to 4000 actual cubic feet per minute, including the following: deburring; buffing, polishing, abrasive blasting; pneumatic conveying; and woodworking operations.

- (i) Frame grinding operation identified as Unit N.

326 IAC 8-3-2 (Cold Cleaner Operations)

(a) The Immersion Cleaning operation identified as an insignificant activity, is subject to the requirements of 326 IAC 8-3-2 (Cold cleaner operation) since it was constructed after January 1, 1980. Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations) for cold cleaning operations the owner or operator shall:

- (1) Equip the cleaner with a cover;

- (2) Equip the cleaner with a facility for draining cleaned parts;
- (3) Close the degreaser cover whenever parts are not being handled in the cleaner;
- (4) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;
- (5) Provide a permanent, conspicuous label summarizing the operation requirements;
- (6) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

326 IAC 8-3-5 (Cold Cleaner Degreaser Operation and Control)

- (a) The Immersion Cleaning operation identified as an insignificant activity, is also subject to the requirements of 326 IAC 8-3-5 since it was constructed after July 1, 1990. Pursuant to this rule, the Permittee shall comply with the following requirements for cold cleaner degreaser operation and control:
  - (1) Pursuant to 326 IAC 8-3-5(a) (Cold Cleaner Degreaser Operation and Control), the Permittee shall ensure that the following control equipment requirements are met:
    - (i) Equip the degreaser with a cover. The cover must be designed so that it can be easily operated with one (1) hand if:
      - (A) The solvent volatility is greater than two (2) kiloPascals (fifteen (15) millimeters of mercury or three-tenths (0.3) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F));
      - (B) The solvent is agitated; or
      - (C) The solvent is heated.
    - (ii) Equip the degreaser with a facility for draining cleaned articles. If the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), then the drainage facility must be internal such that articles are enclosed under the cover while draining. The drainage facility may be external for applications where an internal type cannot fit into the cleaning system.
    - (iii) Provide a permanent, conspicuous label which lists the operating requirements outlined in subsection (b).
    - (iv) The solvent spray, if used, must be a solid, fluid stream and shall be applied at a pressure which does not cause excessive splashing.

- (v) Equip the degreaser with one (1) of the following control devices if the solvent volatility is greater than four and three-tenths (4.3) kiloPascals (thirty-two (32) millimeters of mercury or six-tenths (0.6) pounds per square inch) measured at thirty-eight degrees Celsius (38°C) (one hundred degrees Fahrenheit (100°F)), or if the solvent is heated to a temperature greater than forty-eight and nine-tenths degrees Celsius (48.9°C) (one hundred twenty degrees Fahrenheit (120°F)):
  - (A) A freeboard that attains a freeboard ratio of seventy-five hundredths (0.75) or greater.
  - (B) A water cover when solvent is used is insoluble in, and heavier than, water.
  - (C) Other systems of demonstrated equivalent control such as a refrigerated chiller or carbon adsorption. Such systems shall be submitted to the U.S. EPA as a SIP revision.
- (2) Pursuant to 326 IAC 8-3-5(b) (Cold Cleaner Degreaser Operation and Control), the owner or operator of a cold cleaning facility shall ensure that the following operating requirements are met:
  - (i) Close the cover whenever articles are not being handled in the degreaser.
  - (ii) Drain cleaned articles for at least fifteen (15) seconds or until dripping ceases.
  - (iii) Store waste solvent only in covered containers and prohibit the disposal or transfer of waste solvent in any manner in which greater than twenty percent (20%) of the waste solvent by weight could evaporate.

#### 326 IAC 8-6 (Organic Solvent Emission Limitations)

This rule applies to sources commencing operation after October 7, 1974 and prior to January 1, 1980, located anywhere in the state, with potential VOC emissions of 100 tons per year or more, and not regulated by any other provision of Article 8. This source does not have potential VOC emissions at, or in excess of 100 tons per year, therefore 326 IAC 8-6 does not apply.

#### 326 IAC 11-1 (Emission Limitations for Existing Foundries)

This rule establishes specific emission limitations for particulate matter from foundries in operation on or before December 6, 1968. Foundries beginning operation after December 6, 1968 are required to comply with the emission limits specified in 362 IAC 6-3. This rule is not applicable to this source since the foundry was not in existence prior to December 6, 1968.

### Testing Requirements

Based on IDEM, OAQ's stack test requirement criteria, testing will be required for the following emission units and/or control devices:

- (1) Testing for baghouse (PCU-1) controlling the particulate emissions from No Bake Foundry Sand Handling System (Unit A) and Green Sand Foundry Sand Handling System (Unit D)

is required, because the facility accounts for greater than 40 % of source wide potential to emit of PM. Since the control device (PCU-1) has not been tested, and its proper operation is required for the source to respectively comply with 326 IAC 2-2 (PSD) and 326 IAC 2-8 (FESOP), the source shall be required to conduct the testing outlined in Condition D.1.6.

- (2) This source utilizes one (1) natural gas fired thermal oxidizer (PCU-3) to control VOC emissions from the Thermal Sand Reclaimer with overall VOC destruction efficiency of 99%. A compliance stack test for VOCs shall be performed at the natural gas fired thermal oxidizer (PCU-3), with a maximum heat input rate of 0.475 MMBtu/hr, to determine the minimum thermal oxidizer temperature, fan amperage and duct velocity required to maintain overall VOC destruction efficiency of 99%. Since compliance with the VOC destruction efficiency and operating temperature specified for the oxidizer in the FESOP is needed to demonstrate compliance with 326 IAC 2-8 (FESOP), the source shall be required to conduct the testing outlined in Condition D.1.6.

Testing is not required for the VOC emissions from the coremaking at No Bake Foundry because conservative emission factors were used to calculate emissions from the core making operation. VOC emissions are also limited based on the limited binder usage per year.

Testing is not required for the VOC emissions from the melting, pouring and casting at No Bake Foundry because conservative emission factors were used to calculate emissions from this process. VOC emissions are also limited based on the limited binder usage per year.

Testing is not required on baghouses PCU-2 and PCU-4 because compliance will be demonstrated through proper operation and parametric monitoring of the baghouses.

Testing is not required on any of the other emission units at this source because they do not meet any of the criteria which would require a stack test.

## **Compliance Requirements**

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-8-4. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

- (1) The one (1) natural gas fired thermal oxidizer (PCU-3) has applicable compliance monitoring conditions as specified below:
  - (a) A continuous monitoring system shall be calibrated, maintained, and operated on the thermal oxidizer for measuring operating temperature. The output of this system shall be recorded as an hourly average. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the hourly average temperature of the thermal oxidizer is below 1200 °F. An hourly average temperature that is below 1200 °F is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.
  - (b) The Permittee shall determine the hourly average temperature from the most recent valid stack test that demonstrates compliance with limits in condition D.1.4, as approved by IDEM.
  - (c) On and after the date the approved stack test results are available, the Permittee shall take appropriate response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports whenever the hourly average temperature of the thermal oxidizer is below the hourly average temperature as observed during the compliant stack test. An hourly average temperature that is below the hourly average temperature as observed during the compliant stack test is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.
  - (d) The Permittee shall determine fan amperage or duct pressure from the most recent valid stack test that demonstrates compliance with limits in condition D.1.4, as approved by IDEM.
  - (e) The duct pressure or fan amperage shall be observed at least once per day when the thermal oxidizer is in operation. When for any one reading, the duct pressure or fan amperage is outside the normal range as established in most recent compliant stack test, the Permittee shall take reasonable response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports. A reading that is outside the range as established in the most recent compliant stack test is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be

considered a deviation from this permit.

These monitoring conditions are necessary because the thermal oxidizers (PCU-3) for the Thermal Sand Reclaimer (Unit C) must operate properly to ensure compliance with 326 IAC 2-8 (FESOP) and 326 IAC 8-1-6 (New Facilities; General Reduction Requirements).

- (2) The baghouse PCU-1, controlling emissions from Unit A and Unit D, baghouse PCU-2 controlling emissions from Unit B and Unit E operations, and the baghouse PCU-4 controlling emissions from Unit C, have applicable compliance monitoring conditions as specified below:
  - (a) Visible emission notations of the S/V-1, S/V-2, and S/V-3 baghouse stack exhausts shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal. For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance Response Plan for these units shall contain troubleshooting contingency and response steps for when an abnormal emission is observed. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.
  - (b) The Permittee shall record the total static pressure drop across each of the baghouses identified as PCU-1, PCU-2, and PCU-4, at least once per shift when the systems are in operation. When for any one reading, the pressure drop across the baghouses (PCU-1 and PCU-2) is outside the normal range of 6.0 and 8.0 inches of water and the baghouse (PCU-4) is outside the normal range of 3.0 to 12.0 or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Compliance Response Plan - Preparation, Implementation, Records, and Reports. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.
  - (c) An inspection shall be performed each calendar quarter of all bags controlling the Unit A, B, C, D and E operations. All defective bags shall be replaced.
  - (d) In the event that bag failure has been observed:
    - (1) For multi-compartment units, the affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) business hours of the determination of failure, response steps

according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) business hours of discovery of the failure and shall include a timetable for completion. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit. If operations continue after bag failure is observed and it will be 10 days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

- (2) For single compartment baghouses, if failure is indicated by a significant drop in the baghouse's pressure readings with abnormal visible emissions or the failure is indicated by an opacity violation, or if bag failure is determined by other means, such as gas temperatures, flow rates, air infiltration, leaks, dust traces or triboflows, then failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

These monitoring conditions are necessary because the baghouses for these units must operate properly to ensure compliance with 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), and 326 IAC 2-8 (FESOP) and render 326 IAC 2-2 (Prevention of Significant Deterioration) and 326 IAC 2-3 (Emission Offset) not applicable.

## **Conclusion**

The construction and operation of this bronze and stainless steel and no bake foundry operation shall be subject to the conditions of the attached proposed FESOP 127-17726-00037.

Uncontrolled Potential Emissions (tons/year)									
Emissions Generating Activity									
Pollutant	Sand Handling System	Induction Furnace, Pouring, Casting & Cooling	Thermal Sand Reclaimer	Sand Handling System	Fume Control System	Plasma Cutting	Melting, Pouring, Casting and Cooling (Insignificant)	Insignificant Activities	TOTAL**
	Unit A (No bake foundry)	Unit B (No bake foundry)	Unit C (No bake foundry)	Unit D (Green Sand Foundry)	Unit E (Green Sand Foundry)		Unit K (Investment Casting Foundry)		
PM	509.83	11.27	175.70	125.35	6.64	5.25	0.29	0.54	834.8
PM10	20.39	11.27	175.70	1.52	6.64	5.25	0.29	0.69	221.7
SO2	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.02	0.1
NOx	0.00	0.05	0.00	0.00	0.00	0.00	0.00	2.68	2.7
VOC	27.50	60.34	56.94	0.06	0.00	0.00	0.00	6.27	151.1
CO	0.00	10.99	0.00	0.00	0.00	0.00	0.00	13.2	13.2
total HAPs	7.14	12.11	0.00	0.10	0.74	2.05	0.11	1.11	23.3
worst case single HAP	4.82 (Xylene)	3.65 (Phenol)	0.00	0.059 (Formaldehyde)	0.431 (Manganese)	1.07 (Manganese)	0.0591 (Chromium)	0.331 (Methylene Chloride)	4.82 (Xylene)

Controlled Potential Emissions (tons/year)									
Emissions Generating Activity									
Pollutant	Sand Handling System	Induction Furnace, Pouring, Casting & Cooling	Thermal Sand Reclaimer	Sand Handling System	Fume Control System	Plasma Cutting	Melting, Pouring, Casting and Cooling (Insignificant)	Insignificant Activities	TOTAL**
	Unit A (No bake foundry)	Unit B (No bake foundry)	Unit C (No bake foundry)	Unit D (Green Sand Foundry)	Unit E (Green Sand Foundry)		Unit K (Investment Casting Foundry)		
PM	5.10	1.13	1.76	1.25	0.66	5.25	0.29	0.54	15.93
PM10	0.20	1.13	1.76	0.02	0.66	5.25	0.29	0.69	9.93
SO2	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.03
NOx	0.00	0.01	0.00	0.00	0.00	0.00	0.00	2.68	2.69
VOC	6.41	11.33	0.06	0.06	0.00	0.00	0.00	6.27	24.13
CO	0.00	2.06	0.00	0.00	0.00	0.00	0.00	2.25	4.31
total HAPs	1.34	5.87	0.00	0.00	0.00	2.05	0.11	1.11	10.43
worst case single HAP	0.905 (Xylene)	0.685 (Phenol)	0.00	negl.	negl.	1.07 (Manganese)	0.0591 (Chromium)	0.331 (Methylene Chloride)	0.905 (Xylene)

Total emissions based on rated capacity at 8,760 hours/year.

# Appendix A: Emissions Calculations

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## No-Bake Foundry

### Particulate Emissions

Company Name: Urschel Laboratories Incorporated  
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384  
Permit No.: 127-17726-00037  
Reviewer: Adeel Yousuf / EVP  
Date: 11/06/03

#### 1. Particulate Matter Emissions From Emission Unit A (Sand Handling System) to Sand Handling System Baghouse (PCU-1) and Through S/V-1

Process	Emission Factor * (lb PM10/ton metal)
Moldmaking, Coremaking and Sand Handling	6
Shakeout and Cleaning	1.76

Total: 7.76

\* Emission factors are from AP-42, Table 12.13-2

Pollutant	Maximum Throughput (lb metal/hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM **	1200	116.4	509.83	99	1.16	5.10
PM10	1200	4.656	20.39	99	0.05	0.20

Note:

\*\* Based on the stack test PM10 is equal to 4% of total PM.

#### Methodology

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb

Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb \* (1-Control Efficiency)

#### 2. Particulate Matter Emissions From Emission Unit B (Fume Control System) to Fume Control Baghouse (PCU-2) and Through S/V-2

Process	Emission Factor * (lb PM10/ton metal)
Electric Induction Furnace	0.09
Pouring and Casting	2.8
Casting Cooling	1.4

Total: 4.29

\* Emission factors are from AP-42, Table 12.13-2

Pollutant	Maximum Throughput (lb metal/hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10 **	1200	2.574	11.27	90	0.26	1.13

Note:

\*\* It is assumed that PM equal PM10

#### Methodology

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb

Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb \* (1-Control Efficiency)

#### 3. Particulate Matter Emissions From Emission Unit C (Thermal Sand Reclaimer) to Thermal Sand Reclaimer Baghouse (PCU-4) and Through S/V-3

Pollutant	Outlet Grain Loading (gr/acf)	Baghouse Control Efficiency (%)	Flow Rate (acfm)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10 *	0.0072	99	6500	40.11	175.70	0.40	1.76

Note:

\* It is assumed that PM equal PM10

#### Methodology

Uncontrolled PM/PM10 = grain loading (gr/acf outlet) \* Flow rate (acfm) \* (60 min/hr) \* (1 lb/7000 gr) \* 4.38 (tons/yr / lb/hr) / (1- control efficiency %)

Controlled PM/PM10 = grain loading (gr/acf outlet) \* Flow rate (acfm) \* (60 min/hr) \* (1 lb/7000 gr) \* 4.38 (tons/yr / lb/hr)

**Appendix A: Emissions Calculations**

**Green Sand Foundry**

**Particulate Emissions**

**Company Name:** Urschel Laboratories Incorporated  
**Address City IN Zip:** 2503 Calumet Avenue, Valparaiso, Indiana 46384  
**Permit No.:** 127-17726-00037  
**Reviewer:** Adeel Yousuf / EVP  
**Date:** 11/10/03

**1. Sand Handling System (Emission Unit ID: D)**

Process	Total (lbs)
Dust captured in the baghouse	2,576
Sand Handled	189,922

based on June 2003 test run  
 based on June 2003 test run

PM Emission Factor:  $\frac{2,576 \text{ lbs dust caught}}{189,922 \text{ Pound of Sand}} = 0.0136 \text{ lb dust / lb sand} \times 2000 \text{ lb / ton} = 27.2 \text{ lb PM/ton sand}$

PM10 Emission Factor: Testing conducted on April 4, 2003 for PM10 (captured emissions) was performed at the inlet duct to the Sand Handling Baghouse. The average of the three tests runs demonstrated a captured emission factor of 0.33 pounds of PM10 per ton of sand throughput.

HAP Emission Factors: Samples of the baghouse catch at the baghouse were obtained and analyzed for metallic HAPs by total constituent analyses

Pollutant	Emission factor (lb/ton)	Maximum Throughput (tons sand / day)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM	27.2	25	28.620	125.354	99	0.29	1.25
PM10	0.33	25	0.347	1.521	99	0.0035	0.0152
Metallic HAPs	Emission factor (wt%)						
Arsenic	0.000023	25	6.58E-04	2.88E-03	99	6.58E-06	2.88E-05
Cadmium	0.000005	25	1.43E-04	6.27E-04	99	1.43E-06	6.27E-06
Chromium	0.000033	25	9.44E-04	4.14E-03	99	9.44E-06	4.14E-05
Cobalt	0.000009	25	2.58E-04	1.13E-03	99	2.58E-06	1.13E-05
Lead	0.000057	25	1.63E-03	7.15E-03	99	1.63E-05	7.15E-05
Manganese	0.000200	25	5.72E-03	2.51E-02	99	5.72E-05	2.51E-04
Nickel	0.000023		6.58E-04	2.88E-03	99	6.58E-06	2.88E-05
<b>Total HAPs:</b>			1.00E-02	4.39E-02		1.00E-04	4.39E-04

**2. Fume Control System (Emission Unit ID: E)**

Process	Total (lbs)
Baghouse dust	1,800
Total amount of Bronze	716,102

based on dust hauled from the plant from February 2000 through April 2003 is 1,800 pounds  
 based on amount of bronze purchased and assumed to be melted and poured from February 2000 through April 2003 is 716,102

PM/PM10 Emission Factor:  $\frac{1,800 \text{ lbs dust caught}}{716,102 \text{ Pound of Sand}} = 0.0025 \text{ lbs dust/lb bronze}$

HAP Emission Factors: Samples of the baghouse catch at the baghouse were obtained and analyzed for metallic HAPs by total constituent analyses

Pollutant	Emission factor (lb/lb)	Maximum Throughput (lbs/hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10	0.0025	600	1.515	6.636	90	0.15	0.66
Metallic HAPs	Emission factor (wt%)						
Antimony	0.00071	600	1.08E-03	4.71E-03	99	1.08E-05	4.71E-05
Arsenic	0.00022	600	3.33E-04	1.46E-03	99	3.33E-06	1.46E-05
Cadmium	0.01900	600	2.88E-02	1.26E-01	99	2.88E-04	1.26E-03
Chromium	0.00620	600	9.39E-03	4.11E-02	99	9.39E-05	4.11E-04
Cobalt	0.00056	600	8.48E-04	3.72E-03	99	8.48E-06	3.72E-05
Lead	0.01700	600	2.58E-02	1.13E-01	99	2.58E-04	1.13E-03
Manganese	0.06500	600	9.85E-02	4.31E-01	99	9.85E-04	4.31E-03
Nickel	0.00260	600	3.94E-03	1.73E-02	99	3.94E-05	1.73E-04
<b>Total HAPs:</b>			1.69E-01	7.39E-01		6.62E-04	2.90E-03

Note:  
 It is assumed that PM is equal to PM10.

**Methodology**

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb  
 Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb \* (1-Control Efficiency)

**Appendix A: Emissions Calculations**  
**Existing Investment Casting Foundry**  
**Particulate Emissions**

**Company Name: Urschel Laboratories Incorporated**  
**Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384**  
**Permit No.: 127-17726-00037**  
**Reviewer: Adeel Yousuf / EVP**  
**Date: 11/10/03**

**3. Particulate Matter and Metallic HAP Emissions from Existing Investment Casting Foundry (Emission Unit ID: K)**

Operations	AP-42 PM/PM10 Emission Factor (lb/ton metal)	90% Scaled down PM/PM10 Emission Factor (lb/ton metal)
Electric Induction Melting	0.09	0.009
Pouring and Casting	2.80	0.28
Casting Cooling	1.40	0.14
Total:	4.29	0.429

Note: There are no published emission factors for emissions of particulate matter and HAPs from small stainless steel investment casting foundries. Emission Factors in EPA publications apply to large steel foundries employing sand casting processes. Use of the published emission factors are believed to grossly overestimate PM/PM10 emissions from the small stainless steel foundry. To estimate emissions from the stainless steel foundry, emission factors for large steel sand casting foundries, published in EPA's AP-42, page 12.13-6, Table 12.13-2, January 1995 were used. These factors were decreased by 90% to account for the differences in scale.

Pollutant	Emission factor (lb/ton)	Maximum Throughput (lbs metal / hr)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)	Baghouse Control Efficiency (%)	Controlled Potential Emissions (lb/hr)	Controlled Potential Emissions (ton/yr)
PM/PM10	0.429	310	0.066	0.291	0	0.066	0.291
Metallic HAPs	Emission factor (wt%) *						
Chromium	0.2029		1.35E-02	5.91E-02	99	1.35E-04	5.91E-04
Cobalt	0.0796		5.29E-03	2.32E-02	99	5.29E-05	2.32E-04
Manganese	0.0181		1.20E-03	5.27E-03	99	1.20E-05	5.27E-05
Nickel	0.0898		5.97E-03	2.62E-02	99	5.97E-05	2.62E-04
Selenium	0.00025		1.66E-05	7.28E-05	99	1.66E-07	7.28E-07
<b>Total HAPs:</b>			2.60E-02	1.14E-01		2.60E-04	1.14E-03

\* Weight fractions of the constituents of stainless steel that are HAPs are the same weight fractions in PM/PM10 emissions.

**Methodology**

Uncontrolled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb

Controlled Emissions (tons/yr) = Max. Metal Processing Rate (lb/hr) x Emission Factor (lb/ton) / 2,000 lb/ton x 8760 hrs/yr x 1ton/2000 lb \* (1-Control Efficiency)

**Appendix A: Emissions Calculations  
No-Bake Foundry**

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**Company Name: Urschel Laboratories Incorporated**  
**Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384**  
**Permit No.: 127-17726-00037**  
**Reviewer: Adeel Yousuf / EVP**  
**Date: 11/04/03**

**SO<sub>2</sub>, NO<sub>x</sub> and CO Emissions From New No Bake Foundry**

**A. SO<sub>2</sub> and NO<sub>x</sub> Emissions**

Emissions of SO<sub>2</sub>, NO<sub>x</sub> and CO occur during pouring, cooling and shakeout operations. Most emissions of these pollutants will report to the Fume Control System Baghouse (PCU-2) and be discharged through S/V-2.

Data are as follows:

Pollutant	Concentration of Pollutant in Off Gas (mg/m <sup>3</sup> )
Sulfur Dioxide (SO <sub>2</sub> )	0.1
Oxides of Nitrogen (NO <sub>x</sub> )	0.03
Total VOC as CH <sub>4</sub>	38.58

Above pollutant concentrations are based on the results of testing emissions of SO<sub>2</sub> and NO<sub>x</sub> and VOC from phenolic urethane no-bake molds during pouring and cooling presented in "Chemical Emissions from Foundry Molds", W.C. Scott, et al, Southern Research Institute AFS Transactions 77-98.

Convert total hydrocarbons based on stoichiometry as CH<sub>4</sub> is equivalent to total gaseous organic compound TGOC or VOC as propane (C<sub>3</sub>H<sub>8</sub>):

$$38.58 \text{ (CH}_4\text{)} \times \frac{12 \text{ (C)}}{16 \text{ (CH}_4\text{)}} \times \frac{44 \text{ (C}_3\text{H}_8\text{)}}{36 \text{ (C)}} = 35.36 \text{ ppm TGOC or VOC as C}_3\text{H}_8$$

VOC emission factor for pouring, cooling and shakeout \* = 0.205 lbs VOC/ lb binder

\* VOC emission factors are based on the results of testing conducted by the Casting Emissions Reduction Program (CERP) reported in "Phenolic Urethane/Iron No-Bake Baseline Emission Test", Technikon LLC, April 10, 2003.

$$\text{Potential Sulfur Dioxide (SO}_2\text{) emissions: } \frac{\text{SO}_2 \times \text{VOC}}{\text{TGOC}} = \frac{(0.10) \times (13.78)}{35.36} = 0.039 \text{ lb SO}_2\text{/hr} = 0.17 \text{ tons/yr}$$

$$\text{Potential Oxides of Nitrogen (NO}_x\text{) emissions: } \frac{\text{NO}_x \times \text{VOC}}{\text{TGOC}} = \frac{(0.03) \times (13.78)}{35.36} = 0.012 \text{ lb NO}_x\text{/hr} = 0.05 \text{ tons/yr}$$

**B. Carbon Monoxide Emissions**

$$\begin{aligned} \text{CO Emission Factor* (lb CO/ ton of metal cast)} &= 4.18 \\ \text{Maximum Metal Melting Rate (lb/hr)} &= 1200 \end{aligned}$$

$$\text{Maximum CO Emission Rate} = 2.508 \text{ lb CO/hr} = 10.99 \text{ tons/yr}$$

Maximum Binder Usage =	67.2 lb/hr
Limited Binder Usage =	12.614 lb/hr

Pollutant	Maximum Potential Emissions (lb/hr)	Maximum Potential Emissions (ton/yr)	Emission Factor** (lb/lb binder)	Limited Potential Emissions (lb/hr)	Limited Potential Emissions (ton/yr)
SO <sub>2</sub>	0.039	0.171	0.001	0.007	0.032
NO <sub>x</sub>	0.012	0.053	0.000	0.002	0.010
CO	2.508	10.985	0.037	0.471	2.062

\* CO emission factor is based on the results of test conducted by the Casting Emissions Reduction Program (CERP) as reported in "Phenolic Urethane/Iron No Bake Baseline Emission Test", Technikon LLC, April 10, 2003.

\*\* Based on maximum hourly binder usage rate of 67.2 pounds per hour.

Appendix A: Welding and Cutting

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Company Name: Urschel Laboratories Incorporated  
 Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384  
 Permit No.: 127-17726-00037  
 Reviewer: Adeel Yousuf / EVP  
 Date: 11/10/03

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)		EMISSION FACTORS * (lb pollutant / lb electrode)	HAP Weight %				EMISSIONS (lb/hr)					TOTAL HAPS (lb/hr)
				PM = PM10	Mn	Ni	Cobalt	Cr	PM = PM10	Mn	Ni	Cobalt	Cr	
WELDING														
Stick Welding (E308L-17)	1	0.21		5.40E-03	0.0118	0.0898	0.0796	0.2029	1.13E-03	1.34E-05	1.02E-04	9.03E-05	2.30E-04	3.45E-04
Stick Welding (E309L-17)	1	0.72		5.40E-03	0.0118	0.0898	0.0796	0.2029	3.89E-03	4.59E-05	3.49E-04	3.09E-04	7.89E-04	1.18E-03
Stick Welding (E316L-17)	1	0.155		3.20E-03	0.0118	0.0898	0.0796	0.2029	4.96E-04	5.85E-06	4.45E-05	3.95E-05	1.01E-04	1.51E-04
EMISSION TOTALS									PM = PM10	Mn	Ni	Cobalt	Cr	Total HAPs
Potential Emissions lbs/hr									0.01	6.51E-05	4.96E-04	4.39E-04	1.12E-03	1.68E-03
Potential Emissions lbs/day									0.13	1.56E-03	1.19E-02	1.05E-02	2.69E-02	4.03E-02
Potential Emissions tons/year									0.02	2.85E-04	2.17E-03		4.90E-03	7.36E-03

METHODOLOGY

\* Stick Welding emission factors are from AP-42, Section 12.19-4, Table 12.19-1.

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/day x 1 ton/2,000 lbs.

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**Date:** 11/10/03

## 1. PM/PM10 Emissions from Grinding Operations

*Grinding operations include the grinding of welds on machine frames, machine parts and covers.*

Based on Engineering Judgement, the amount of PM/PM10 emitted from the grinding operation is equal to:

0.1 lbsPM/PM10  
lb metal removed

Grinding Operation Properties:

Maximum grinding rate (in/hr): 180  
 Maximum Metal Width (inches): 1  
 Maximum Depth of Metal (inches): 0.015  
 Density of stainless steel (lb/in<sup>3</sup>): 0.285

Total metal removed = **0.770 lbs metal removed per hour**

$$\begin{array}{rclcl}
 0.77 \text{ lbs metal removed} & \times & 0.10 \text{ lb PM/PM10} & = & 0.077 \text{ lbs PM/PM10} \\
 \text{hr} & & \text{lb metal removed} & & \text{hr} \\
 \hline
 0.077 \text{ lbs PM/PM10} & \times & 8760 \text{ hr} & \times & 1 \text{ ton} & = & 0.337 \text{ tons PM/PM10} \\
 \text{hr} & & \text{yr} & & 2,000 \text{ lbs} & & \text{yr}
 \end{array}$$

## 2. PM/PM10 Emissions from Laser Cutting

*Laser cutting is performed on stainless steel sheet material with nominal gauge of 13 to 16 gauge at a maximum speed of 127 inches of cut per minute*

Based on mass balance, the amount of PM/PM10 emitted from the Laser cutting is equal to:

0.0303 lbsPM/PM10  
lb metal removed

Grinding Operation Properties:

Maximum grinding rate (in/hr): 7620  
 Maximum Metal Width (inches): 0.005  
 Maximum Metal Thickness (inches) 0.0897  
 Density of stainless steel (lb/in<sup>3</sup>): 0.285

Total metal removed = **0.974 lbs metal removed per hour**

$$\begin{array}{rclcl}
 0.974 \text{ lbs metal removed} & \times & 0.0303 \text{ lb PM/PM10} & = & 0.0295 \text{ lbs PM/PM10} \\
 \text{hr} & & \text{lb metal removed} & & \text{hr} \\
 \hline
 0.0295 \text{ lbs PM/PM10} & \times & 8760 \text{ hr} & \times & 1 \text{ ton} & = & 0.129 \text{ tons PM/PM10} \\
 \text{hr} & & \text{yr} & & 2,000 \text{ lbs} & & \text{yr}
 \end{array}$$

# Appendix A: Welding and Cutting

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**Company Name:** Urschel Laboratories Incorporated  
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**Date:** 11/10/03

## 3. PM/PM10 Emissions from Plasma Cutting

Plasma torch cutting is performed on stainless steel plate with a maximum thickness of one inch at a maximum speed of 37 inches per minute.

Based on mass balance, the amount of PM/PM10 emitted from the Plasma cutting is equal to:

$$0.0018 \frac{\text{lbsPM/PM10}}{\text{inch cut}}$$

Grinding Operation Properties:

Maximum grinding rate (in/hr): 2220  
 Maximum Metal Thickness (inches) 1

$$\begin{array}{rcl}
 \frac{2220 \text{ inches}}{\text{hr}} \times \frac{0.0018 \text{ lbs PM/PM10}}{\text{inch cut}} & = & 3.996 \text{ lbs PM/PM10/hr} \\
 \frac{0.0295 \text{ lbs PM/PM10}}{\text{hr}} \times \frac{2628 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}} & = & 5.251 \text{ tons PM/PM10/yr}
 \end{array}$$

\*The plasma cutting operation is operationally limited by downstream machining operations. A variety of parts are produced by first plasma cutting a workpiece from stainless steel plate. The workpiece is then sent for further metalworking operations to produce the required machine part. The total time to produce a given part is the sum of the times required to set up for plasma cutting, remove the piece from the plasma cutting, set up the piece for downstream metalworking, perform downstream metalworking and remove the piece from the metal working operation. To estimate the maximum annual emissions (potential emissions) for plasma cutting, the production records of all pieces initially cut by plasma cutting were reviewed. The piece with the maximum percent of total production time taken up by the plasma cutting is the "worst case piece" with respect to particulate matter emissions. The "worst case piece" requires approximately 26 percent plasma cutting time. For the purpose of calculating potential emissions 20 percent plasma cutting time relative to total production time is assumed, i.e. 2628 hour per year.

## Metallic HAPs emissions from Grinding, Laser cutting and Plasma Cutting Operations

Operation	PM/PM10 Emissions	Weight Percent HAPs *						
		Chromium	Cobalt	Nickel	Selenium	Manganese		
		20.29%	7.96%	8.98%	0.03%	1.81%		
	ton/yr	HAP Emissions (tons/yr)					Total	
Grinding Operation	0.34	1.82E-03	3.98E-03	3.03E-02	2.68E-02	6.84E-02	1.31E-01	
Laser Cutting	0.13	6.97E-04	1.52E-03	1.16E-02	1.03E-02	2.62E-02	5.02E-02	
Plasma Cutting	5.25	2.84E-02	6.20E-02	4.72E-01	4.18E-01	1.07E+00	2.05E+00	

Total      3.09E-02   6.75E-02   5.13E-01   4.55E-01   1.16E+00   2.23E+00

\* HAP emission factors represent a typical metallic HAP content in stainless steel. Weight fractions of metallic constituents in stainless steel are the same as the weight fractions of those constituents in particulate matter emissions.

**Appendix A: Emissions Calculations  
No-Bake Foundry**

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**Company Name: Urschel Laboratories Incorporated**  
**Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384**  
**Permit No.: 127-17726-00037**  
**Reviewer: Adeel Yousuf / EVP**  
**Date: 09/03/03**

**Volatile Organic Compounds (VOC) Emissions**

**1. Green Sand Foundry (D)**

Phenol Content in Sand (lb/ton core sand): 

56
----

  
 Formaldehyde Content in Sand (lb/ton core sand): 

4
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Pollutant	Emission Factor (%) *	Maximum Throughput (Core/hr)	Uncontrolled Potential Emissions (ton/yr)	Controlled Potential Emissions (tons/yr)
Phenol	0	0.167	0	0
Formaldehyde	2	0.167	0.059	0.059

Notes:

\* VOC emission factors are from the AFS Document, "Form R Reporting of Binder Chemicals Used in Foundries", 1998.

VOC emissions from pouring, cooling and shakeout are believed to be negligible because the green sand used for molds does not contain organic binders or coal derivatives.

Methodology:

Uncontrolled Potential Emissions (ton/yr) = VOC content of sand (lb/ton core sand) x VOC emission factor (%) x Max. Throughput (Core/hr) x 1ton/2000 lb x 8760 hrs/ 1 yr.

**2. Immersion Cleaning (Cold Cleaning) Operations (G)**

	% Evaporated	Average Bulk Density (lb/gal)	Total Weight of Solvent Used (lb/yr)	Total Volume of Solvents Used (gal/yr)	Total Volume of Solvents Disposed (gal/yr)
Cleaning Solvent	100	6.89	41,793	6,067	4,290

**Total Uncontrolled Potential Emissions: 6.12 tons/yr**  
**Total Controlled Potential Emissions: 6.12 tons/yr**

Notes:

The total solvent purchased for calendar years 2001 and 2002 are representative of the anticipated maximum solvent usage rates over the next five years based on Urschel's solvent management program.

Methodology:

Uncontrolled Potential Emissions (ton/yr) = % VOC Evaporated x Total Weight of Solvent Used (lb/yr) x (1 - ((Total Volume of Solvents Used (gal/yr))/(Total Volume of Solvents Disposed (gal/yr)))  
 x 1 ton / 2000 lbs

**Appendix A: Emissions Calculations****No-Bake Foundry**

**Company Name:** Urschel Laboratories Incorporated  
**Address City IN Zip:** 2503 Calumet Avenue, Valparaiso, Indiana 46384  
**Permit No.:** 127-17726-00037  
**Reviewer:** Adeel Yousuf / EVP  
**Date:** 11/04/03

**Volatile Organic Compounds (VOC) Emissions From New No Bake Foundry****1. Sand Mixing, Moldmaking, Coremaking, Mold/Core Storage (A)**

Pollutant	Emission Factor (lb VOC/ lb binder) *	Maximum Throughput (lb binder/yr)	Uncontrolled Potential Emissions (ton/yr)	Limited Throughput (lb binder/yr)	Controlled Potential Emissions (tons/yr)
VOC	0.066	588,672	19.43	110,500	3.65

Notes:

\* VOC emission factors are based on the results of testing performed by the Ohio Cast Metals Association (OCMA) reported in "Technical and Economic Feasibility Study for Control of VOCs from Phenolic Urethane Cold Box and No Bake Core - and Mold - Making Operations in Foundries", RMT Inc. April 1998.

Methodology:

Emissions (ton/yr) = Maximum Throughput (lb binder/yr) x Emission Factor (lb VOC/lb binder) x 1 ton / 2000 lbs.

**2. Pouring, Cooling and Shakeout (B)**

Pollutant	Emission Factor (lb VOC/ lb binder) *	Maximum Throughput (lb binder/yr)	Uncontrolled Potential Emissions (ton/yr)	Limited Throughput (lb binder/yr)	Controlled Potential Emissions (tons/yr)
VOC	0.205	588,672	60.34	110,500	11.33

Notes:

\* VOC emission factors are based on the results of testing conducted by the Casting Emissions Reduction Program (CERP) reported in "Phenolic Urethane/Iron No-Bake Baseline Emission Test", Technikon LLC, April 10, 2003.

Methodology:

Emissions (ton/yr) = Maximum Throughput (lb binder/yr) x Emission Factor (lb VOC/lb binder) x 1 ton / 2000 lbs.

**Appendix A: Emissions Calculations**  
**N0-Bake Foundry**

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**Company Name: Urschel Laboratories Incorporated**  
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**Reviewer: Adeel Yousuf / EVP**  
**Date: 11/04/03**

**3. Application of Mold Wash (A)**

VOC Emissions

Pollutant	Chemical	VOC Content (lb VOC/gal)	Maximum Usage (gal/yr)	Uncontrolled Potential Emissions (ton/yr)	Limited Usage (gal/yr)	Controlled Potential Emissions (tons/yr)
VOC	Ashland Chemical's Zircon	3.069	5,256	8.07	1,800	2.76

Methodology:

Emissions (ton/yr) = Maximum Throughput (gal/yr) x Emission Factor (lb VOC/gal) x 1 ton / 2000 lbs.

**4. Thermal Sand Reclamation (C)**

Maximum spent Sand Throughput rate (lb/hr):	1000
Maximum VOC content of spend Sand (%):	1.3
Control Efficiency of the Thermal Oxidizer (%):	99.9

Pollutant	Uncontrolled Potential Emissions (ton/yr)	Controlled Potential Emissions (tons/yr)
VOC	56.94	0.06

Methodology:

Uncontrolled Potential Emissions (ton/yr) = Maximum Throughput (lb/yr) x Emission Factor (%) x 1 ton / 2000 lbs x 8760 hours/yr

Controlled Potential Emissions (ton/yr) = Maximum Throughput (lb/yr) x Emission Factor (%) x 1 ton / 2000 lbs x 8760 hours/yr (1-Control Efficiency)

Appendix A: Emissions Calculations

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NO-Bake Foundry

HAP Emission Calculations

Company Name: Urschel Laboratories Incorporated  
Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384  
Permit No.: 127-17726-00037  
Reviewer: Adeel Yousuf / EVP  
Date: 09/03/03

Calculation of Hazardous Air Pollutants Released From Sand Binder System During Moldmaking and Coremaking With Phenolic Urethane No-Bake  
Based on Form R (Reporting of Binder Chemicals Used in Foundries)

Component	Part Fraction in the Sand (%)	Weight Fraction of Component In Each Part	Weight Fraction of Component Released to Air **	Weight Fraction of Component in Binder System Released to Air
Phenol Formaldehyde Polymer (Formaldehyde) *	0.5994	0.50	0.0200	5.994E-03
Aromatic Petroleum Distillates (Xylenes) *		0.30	0.0585	1.052E-02
Phenol *		0.07	0.0000	0.000E+00
Napthalene *		0.04	0.0585	1.403E-03
Dimethyl Glutarate		0.03	0.0000	0.000E+00
Dimethyl Adipate		0.03	0.0000	0.000E+00
Dimethyl Succinate		0.00	0.0000	0.000E+00
Polymeric MDI	0.4000	0.50	0.0000	0.000E+00
Aromatic Petroleum Distillates (Xylenes) *		0.25	0.0585	5.850E-03
Methylene Diphenyldiisocyanate		0.20	0.0000	0.000E+00
Kerosene		0.03	0.0500	6.000E-04
Napthalene *		0.02	0.0585	4.680E-04
Aromatic Petroleum Distillates (Xylenes) *		0.65	0.0585	2.282E-05
Phenylpropylpyridine	0.0006	0.25	0.0000	0.000E+00
Napthalene *		0.05	0.0585	1.755E-06
1,2,4 Trimethylbenzene		0.05	0.0585	1.755E-06

\* Hazardous Air Pollutants

\*\* Organ HAP emission factors for mixing, moldmaking, coremaking and mold storage are based on AFS Document "Form R Reporting of Binder Chemicals Used in Foundries", 1998.

Maximum Sand Mixing Rate = 8400 lbs/hr  
Maximum binder content of Sand = 0.8 %  
Maximum binder usage = 67.2 lb/hr  
Limited binder usage = 12.61 lb/hr

Summary of Organic HAP Emissions from Mixing, Moldmaking, Coremaking and Mold Storage

Organ HAP	Weight Fraction of Component in Binder System Released to Air	Maximum Potential Emission (lb/hr)	Maximum Potential Emissions (ton/yr)	Controlled Potential Emission (lb/hr)	Controlled Potential Emissions (ton/yr)
Formaldehyde	5.994E-03	4.028E-01	1.764E+00	7.561E-02	3.312E-01
Xylene	1.639E-02	1.102E+00	4.825E+00	2.068E-01	9.057E-01
Napthalene	1.872E-03	1.258E-01	5.511E-01	2.362E-02	1.034E-01
<b>Total HAPs:</b>		<b>1.630E+00</b>	<b>7.140E+00</b>	<b>3.060E-01</b>	<b>1.340E+00</b>

**Appendix A: Emissions Calculations  
NO-Bake Foundry  
HAP Emission Calculations**

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**Company Name: Urschel Laboratories Incorporated**  
**Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384**  
**Permit No.: 127-17726-00037**  
**Reviewer: Adeel Yousuf / EVP**  
**Date: 09/03/03**

Metallic Hazardous Air Pollutant Emissions from NO-Bake Foundry:

Metallic hazardous air pollutant (HAPs) are released during pouring, cooling and shakeout operations. The metallic HAPs are constituents of the metals that will be cast in the new no-bake foundry. The vast majority of castings to be produced in the new no-bake foundry will be stainless steel or bronze. The estimates of metallic HAPs emissions are based on the potential emissions of each HAP present as a constituent in the metals. The highest potential emission rate for each HAP from each of the two metals (stainless steel and bronze) is reported as the potential to emit that HAP.

It is assumed that the weight fraction of a HAP in the PM10 emission from pouring and cooling is the same as the weight fraction of the HAP as a constituent of stainless steel and for bronze, the baghouse dust collected in the existing green sand foundry.

**Uncontrolled PM/PM10 emissions = 2.574 lb/hr as calculated on page 2 of 17 for pouring and cooling operation.**

Pollutant	Weight Percent in Typical Stainless Steel (%)	Uncontrolled Potential Emissions (lb/hr)	Uncontrolled Potential Emissions (ton/yr)
<b>Stainless Steel Casting</b>			
Chromium	20.290	0.5222646	2.29E+00
Cobalt	7.960	0.2048904	8.97E-01
Manganese	1.810	0.0465894	2.04E-01
Nickel	8.980	0.2311452	1.01E+00
Selenium	0.025	0.0006435	2.82E-03
	Weight Percent in Typical Stainless Steel (%)		
<b>Bronze Casting *</b>			
Antimony	0.00071	1.83E-05	8.00E-05
Arsenic	0.00022	5.66E-06	2.48E-05
Cadmium	0.01900	4.89E-04	2.14E-03
Chromium	0.00620	1.60E-04	6.99E-04
Cobalt	0.00056	1.44E-05	6.31E-05
Lead	0.17000	4.38E-03	1.92E-02
Manganese	0.65000	1.67E-02	7.33E-02
Nickel	0.00260	6.69E-05	2.93E-04

\* Metal HAPs emission factors from Bronze Casting are based on the analysis of the baghouse dust from the fume control baghouse, which services the existing green sand foundry, provides weight percents of HAPs in baghouse dust.

Worst Case Emissions

Pollutant	Calculated Potential Emissions (ton/yr)		Worst Case Potential Emissions
	Stainless Steel	Bronze	
Antimony	0.00E+00	8.00E-05	8.00E-05
Arsenic	0.00E+00	2.48E-05	2.48E-05
Cadmium	0.00E+00	2.14E-03	2.14E-03
Chromium	2.29E+00	6.99E-04	2.29E+00
Cobalt	8.97E-01	6.31E-05	8.97E-01
Lead	0.00E+00	1.92E-02	1.92E-02
Manganese	2.04E-01	7.33E-02	2.04E-01
Nickel	1.01E+00	2.93E-04	1.01E+00
Selenium	2.82E-03	0.00E+00	2.82E-03

Total HAP: 4.43E+00  
Worst Case HAP: 2.29E+00

**Appendix A: Emissions Calculations**

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**N0-Bake Foundry**

**HAP Emission Calculations**

**Company Name: Urschel Laboratories Incorporated**  
**Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384**  
**Permit No.: 127-17726-00037**  
**Reviewer: Adeel Yousuf / EVP**  
**Date: 11/03/03**

**HAP Emissions From Pouring, Cooling and Shakeout at the New No Bake Foundry**

**Maximum Binder Usage =** 67.2 lb binder/hr  
**Limited Binder Usage =** 12.61 lb binder/hr

HAP	Emission Factor (lb/lb binder)	Potential Uncontrolled Emissions		Potential Controlled Emissions	
		lbs/hr	tons/yr	lbs/hr	tons/yr
Phenol	1.24E-02	8.33E-01	3.65E+00	1.56E-01	6.85E-01
m,p-Cresol	5.84E-03	3.92E-01	1.72E+00	7.36E-02	3.23E-01
Benzene	3.88E-03	2.61E-01	1.14E+00	4.89E-02	2.14E-01
Toluene	7.24E-04	4.87E-02	2.13E-01	9.13E-03	4.00E-02
o-Cresol	6.33E-04	4.25E-02	1.86E-01	7.98E-03	3.50E-02
m,p-Xylene	3.06E-04	2.06E-02	9.01E-02	3.86E-03	1.69E-02
Formaldehyde	2.52E-04	1.69E-02	7.42E-02	3.18E-03	1.39E-02
Aniline	2.01E-04	1.35E-02	5.92E-02	2.53E-03	1.11E-02
Styrene	1.86E-04	1.25E-02	5.47E-02	2.35E-03	1.03E-02
o-Xylene	1.05E-04	7.06E-03	3.09E-02	1.32E-03	5.80E-03
Ethyl Benzene	8.01E-05	5.38E-03	2.36E-02	1.01E-03	4.42E-03
Biphenyl	5.78E-05	3.88E-03	1.70E-02	7.29E-04	3.19E-03
Acetaldehyde	4.31E-05	2.90E-03	1.27E-02	5.43E-04	2.38E-03
Acrolein	1.13E-05	7.59E-04	3.33E-03	1.42E-04	6.24E-04
Propionaldehyde	7.91E-06	5.32E-04	2.33E-03	9.97E-05	4.37E-04
2-Butanone	4.45E-06	2.99E-04	1.31E-03	5.61E-05	2.46E-04
Hexane	4.39E-06	2.95E-04	1.29E-03	5.54E-05	2.42E-04
POMs	1.36E-03	9.14E-02	4.00E-01	1.71E-02	7.51E-02
<b>Total HAPs:</b>		<b>1.75E+00</b>	<b>7.68E+00</b>	<b>3.29E-01</b>	<b>1.44E+00</b>
<b>Worst Case HAP (Phenol):</b>		<b>8.33E-01</b>	<b>3.65E+00</b>	<b>1.56E-01</b>	<b>6.85E-01</b>

**Notes:**

\* Organic HAP emission factors for Pouring, Cooling and Shakeout are based on the results of testing conducted by the Casting Emissions Reduction Program (CERP) reported in "Phenolic Urethane/Iron No-Bake Baseline Emission Test", Technikon LLC, April 10, 2003.

**Appendix A: Emissions Calculations**  
**Natural Gas Combustion Only**  
**MM BTU/HR <100**

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**Company Name:** Urschel Laboratories Incorporated  
**Address City IN Zip:** 2503 Calumet Avenue, Valparaiso, Indiana 46384  
**Permit No.:** 127-17726-00037  
**Reviewer:** Adeel Yousuf / EVP  
**Date:** 11/04/03

Heat Input Capacity  
MMBtu/hr

6.1

Potential Throughput

MMCF/yr

53.7

<b>Facilities</b>	<b>MMBtu/hr</b>
Two Sand Heater Cooler Classifiers each rated at 0.375 MMBtu/hr (EQ-3A and EQ-3B)	0.75
Ladle torches (2) (EQ-12A)	1.5
Thermal Unit (Incinerator) (PCU-3)	0.465
Autoclave Boiler (EQ-19)	0.89
Ceramic Mold Furnace (EQ-20)	2.52
<b>Total</b>	<b>6.125</b>

	Pollutant					
Emission Factor in lb/MMCF	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
				**see below		
Potential Emission in tons/yr	0.05	0.20	0.02	2.68	0.15	2.25

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

**Appendix A: Emissions Calculations**  
**Natural Gas Combustion Only**  
**MM Btu/hr 0.3 - < 100**

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**HAPs Emissions**

**Company Name: Urschel Laboratories Incorporated**  
**Address City IN Zip: 2503 Calumet Avenue, Valparaiso, Indiana 46384**  
**Permit No.: 127-17726-00037**  
**Reviewer: Adeel Yousuf / EVP**  
**Date: 11/04/03**

**HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	5.634E-05	3.219E-05	2.012E-03	4.829E-02	9.121E-05

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	1.341E-05	2.951E-05	3.756E-05	1.019E-05	5.634E-05

Methodology is the same as page 16.

The five highest organic and metal HAPs emission factors are provided above.  
 Additional HAPs emission factors are available in AP-42, Chapter 1.4.